

---

# Department of Defense

## Earned Value Management Implementation Guide



October 2006

Signed

---

**KEITH D. ERNST**  
Director,  
Defense Contract Management Agency

## Department of Defense Earned Value Management Implementation Guide

Purpose: This guide provides the uniform procedures which have been approved by the Director, Defense Contract Management Agency (DCMA) under assigned authority as the Department of Defense's Executive Agent for Earned Value Management Systems (EVMS). This document has been coordinated by SAF/AQ, SAF/FM, ASA (ALT), ASN (RD&A), MDA/PO, NSA/CSS, and DCAA. This document provides guidance to be used during the implementation and surveillance of EVMS established in compliance with DoD Guidelines. Users of this guide are encouraged to submit recommendations for refined procedures to DCMA for consideration.

---

—

OPR: DCMA/PID

OCR: SAF/FMC SAF/AQX  
ASA (ALT)/SAAL-ZR  
DCAA/PPD

NSA/N25  
ASN (RD&A) AP& P  
MDA/DO

\_\_\_\_\_

Submitter's Name:	Telephone No.:
	e-mail:
Address:	
Problem Area:	
a. Section Number and/or Figures:	
b. Recommended Changes:	
If in the review or use of this document, a potential change is made evident, please fill in the appropriate information below and mail or FAX to:	
Defense Contract Management Agency 6350 Walker Lane, Suite 300 Alexandria, VA 22310-3241 FAX: (703) 428-1897	
c. Reason/Rationale for Recommendation	
Additional Remarks:	
Signature:	Date:



THIS PAGE INTENTIONALLY LEFT BLANK

## TABLE OF CONTENTS

<b>FOREWORD .....</b>	<b>x</b>
<b>PART I: EARNED VALUE MANAGEMENT CONCEPTS &amp; GUIDELINES.....</b>	<b>1</b>
<b>Part 1 Section 1 - Earned Value Management.....</b>	<b>2</b>
1.1 Concepts of Earned Value Management .....	2
1.2 EVM and Management Needs .....	2
1.3 Uniform Guidance.....	2
<b>Part 1 Section 2 Earned Value Management System Guidelines.....</b>	<b>3</b>
2.1 Earned Value Management System (EVMS) .....	3
2.2 EVMS Guidelines Concept.....	3
2.3 EVMS Standard .....	3
2.4 System Design and Development.....	6
2.5 System Documentation .....	6
2.6 Cost Impacts.....	7
2.7 Conclusion .....	7
<b>PART 2 - PROCEDURES FOR GOVERNMENT USE OF EARNED VALUE .....</b>	<b>8</b>
<b>Part 2 Section 1 .....</b>	<b>8</b>
<b>Applying Earned Value Management.....</b>	<b>8</b>
2.1.1 Overview.....	8
2.1.2 Component Relationships. ....	8
2.1.3 Roles and Responsibilities .....	8
2.1.3.1 DoD Acquisition, Technology and Logistics (OUSD/AT&L (ARA/AM)).....	8
2.1.3.2 DoD Executive Agent .....	8
2.1.3.2.1 EVMS Review Director and Team .....	9
2.1.3.2.2 Role of Executive Agent in Appeal Process.....	9
2.1.3.3 Component EVM Focal Points .....	9
2.1.3.4 Procuring Activity.....	9
2.1.3.5 Contract Management Office .....	9
2.1.3.6 Contract Auditor.....	10
<b>Part 2 Section 2 .....</b>	<b>11</b>
<b>Pre-contract Activities .....</b>	<b>11</b>
2.2.1 Overview.....	11
2.2.2 General Guidance for Program Managers .....	11
2.2.2.1 Work Breakdown Structure (WBS).....	11
2.2.2.2 Program Manager Responsibilities .....	11
2.2.3 Department of Defense Requirements.....	11
2.2.3.1 Policy .....	11
2.2.3.2 Government Component Thresholds .....	11
2.2.3.3 EVMS Compliance .....	11
2.2.3.4 EVMS Options.....	12
2.2.3.4.1 Contracts Less than \$20M .....	12
2.2.3.4.2 Contracts Less than 12 Months in Duration .....	12
2.2.3.4.3 Non-Schedule-Based Contracts.....	12
2.2.3.4.4 Monitoring Cost Expenditures in Lieu of EVM.....	15
2.2.3.5 Contract Growth and Thresholds .....	15
2.2.3.6 Major Capital Acquisition.....	16
2.2.3.7 Exclusions for Firm Fixed Price (FFP) Contract Type.....	16
2.2.3.7.1 Factors to Consider in Applying EVM to FFP Contracts .....	16
2.2.3.7.2 Tailoring Reporting on FFP Contracts.....	16
2.2.3.8 Mixed Contract Types .....	16
2.2.3.9 IMS Exclusions .....	17
2.2.3.10 Exclusion Waivers .....	18
2.2.3.11 Support and Advice .....	18
2.2.4 Acquisition Plan .....	18

2.2.5 Preparation of the Solicitation .....	18
2.2.5.1 Major Areas .....	18
2.2.5.2 Work Breakdown Structure .....	18
2.2.5.3 Defense Federal Acquisition Regulation Supplement (DFARS) Clauses.....	19
2.2.5.4 Statement of Work (SOW).....	20
2.2.5.5 Contract Data Requirements List (CDRL).....	20
2.2.5.5.1 Reporting Requirements .....	20
2.2.5.5.2 Electronic Data Interchange (EDI) .....	20
2.2.5.5.3 General Tailoring Guidelines.....	20
2.2.5.6 Tailoring Guidance for the Contract Performance Report (CPR) .....	21
2.2.5.6.1 Introduction.....	21
2.2.5.6.2 Risk Factors.....	21
2.2.5.6.2.1 Complexity.....	21
2.2.5.6.2.2 Program Phase .....	21
2.2.5.6.3 Specific Tailoring Guidance for the CPR.....	22
2.2.5.6.3.1 DD 1423-1, Blocks 10, 12, and 13 .....	22
2.2.5.6.3.2 DD 1423-1, Block 16 .....	22
2.2.5.6.3.2.1 Format 1 Reporting Levels.....	22
2.2.5.6.3.2.2 Selection of Formats .....	23
2.2.5.6.3.2.3 Reporting Frequencies.....	23
2.2.5.6.3.2.4 Designation of Time Periods for CPR Formats 3 & 4 .....	23
2.2.5.6.3.3. CPR Tailoring on Cost or Incentive Contracts Valued at Less Than \$20M..	25
2.2.5.6.3.4 CPR Tailoring Guidance for Firm Fixed Price Contracts .....	26
2.2.5.6.3.4.1 Formats 1 and 2 .....	26
2.2.5.6.3.4.2 Format 3 .....	26
2.2.5.6.3.4.3 Format 4 .....	26
2.2.5.6.3.4.4 Format 5 .....	26
2.2.5.6.3.5 Format of CPR Delivery .....	26
2.2.5.6.3.5.1 Contractor Format .....	26
2.2.5.6.3.5.2 Electronic Format .....	27
2.2.5.6.3.5.3 Paper Submissions .....	27
2.2.5.7 Tailoring Guidance for the Integrated Master Schedule (IMS).....	27
2.2.5.7.1 Introduction.....	27
2.2.5.7.3 DD 1423-1, Blocks 10, 12 and 13 .....	28
2.2.5.7.4 DD 1423-1, Block 16 .....	28
2.2.5.7.4.1 IMS Tailoring Guidance for Contracts Valued At or Greater Than \$20M But Less Than \$50M.....	28
2.2.5.7.4.2 Statusing the IMS .....	28
2.2.5.7.4.3 Analyzing and Reporting the IMS.....	28
2.2.5.7.4.4 IMS Reporting Levels .....	29
2.2.5.7.4.5 IMS Level of Detail .....	29
2.2.5.7.5 Schedule Risk Assessment (SRA) .....	30
2.2.5.7.5.1 Purpose and Method .....	30
2.2.5.7.5.2 SRA for Assessments .....	30
2.2.5.7.5.3 SRA Guidelines .....	31
2.2.5.7.6 IMS Tailoring Guidance for Contracts Valued at Less than \$20M.....	31
2.2.5.7.6.1 IMS Tailoring Guidance for Firm Fixed Price Contracts.....	31
2.2.5.7.6.2 Format of IMS Delivery.....	32
2.2.5.7.6.2.1 Contractor Format .....	32
2.2.5.7.6.2.2 Electronic Format .....	32
2.2.5.7.6.2.3 Paper Submissions .....	32
2.2.5.8 Data Item Descriptions (DIDs).....	32
2.2.6 Source Selection Evaluation .....	32
2.2.6.1 Activities .....	32
2.2.6.2 Proposal Submissions.....	32
2.2.6.2.1 Compliance with Validation .....	32

2.2.6.2.2 Compliance Only (No Validation) .....	32
2.2.6.3 Evaluation .....	33
2.2.6.4 Clarification .....	33
2.2.6.5 Proprietary Information .....	33
2.2.7 Preparation of the Contract .....	33
<b>Part 2 Section 3 .....</b>	<b>34</b>
<b>Post-award Activities – System Validation and Maintenance .....</b>	<b>34</b>
2.3.1. Overview.....	34
2.3.2 EVM System Validation .....	34
2.3.2.1 Applications .....	34
2.3.2.2 EVM System Validation Options .....	34
2.3.2.2.1 Contractor Plan.....	34
2.3.2.2.1.1 Assuring Progress Against the Validation Plan.....	36
2.3.2.2.2 Progress Assistance Visit (PAV) .....	37
2.3.2.2.2.1 Purpose of PAV .....	37
2.3.2.2.2.2 PAV Team .....	37
2.3.2.2.2.3 PAV Process .....	37
2.3.2.2.2.4 PAV Results .....	37
2.3.2.3 Government Conducted Validation .....	37
2.3.2.3.1 Validation Review (VR) .....	37
2.3.2.3.1.1 Determination of Evaluation Focus .....	37
2.3.2.3.1.2 VR Team .....	38
2.3.2.3.1.3 VR Process.....	38
2.3.2.3.1.4 VR Results.....	39
2.3.2.3.1.4.1 Advance Agreement (AA).....	39
2.3.2.3.1.4.2 Letter of Acceptance (LOA).....	40
2.3.2.4 EVM System Validation by Other Governments .....	40
2.3.2.5 EVM System Validation of Subcontractors. ....	40
2.3.2.6 EVM System with Prior Government Validation .....	40
2.3.3 EVM System Surveillance and Maintenance .....	40
2.3.3.1 Purpose of Surveillance .....	40
2.3.3.2 Surveillance Policy .....	41
2.3.3.3 Surveillance Responsibilities.....	41
2.3.3.3.1 Guidance .....	41
2.3.3.3.2 Program Management Office (PMO) .....	41
2.3.3.3.3 Earned Value Management Support Staff (EVMSS) .....	41
2.3.3.3.4 Contract Management Office (CMO) .....	41
2.3.3.3.5 DCAA Field Audit Office (FAO) .....	42
2.3.3.3.6 The Contractor.....	42
2.3.3.4 The Surveillance Process.....	42
2.3.3.5 Surveillance of Subcontractors and Other Prime Contractor Locations .....	43
2.3.3.6 Surveillance of Non-Validated Systems .....	43
2.3.4 System Changes .....	43
2.3.4.1 Approval of Changes to Contractor's EVM System .....	43
2.3.4.2 Changes to Validated EVM System .....	44
2.3.4.2.1 Change Process.....	44
2.3.4.2.2 Waivers to Change Approval.....	44
2.3.4.2.3 Exclusions to Approval Requirement .....	44
2.3.4.3 Changes to Compliance Only EVM Systems.....	44
2.3.5 Reviews for Cause (RFC) .....	46
2.3.5.1 Purpose of the RFC.....	46
2.3.5.2 RFC Team .....	46
2.3.5.3 RFC Process .....	46
2.3.5.4 RFC Results .....	46
2.3.6 Deficiencies in Validated EVM Systems .....	48
2.3.6.1 Deficiencies .....	48

2.3.6.2 Application .....	48
2.3.6.3 Actions .....	48
2.3.6.4 Remedies .....	48
2.3.7 Suspension or Withdrawal of Validation.....	48
2.3.7.1 Suspension of Validation.....	49
2.3.7.2 Withdrawal of Validation.....	49
2.3.8 Deficiencies in Non-Validated Systems .....	49
<b>Part 2 Section 4 .....</b>	<b>52</b>
<b>Post-award Activities – Integrated Baseline Reviews .....</b>	<b>52</b>
2.4.1 Overview.....	52
2.4.2 Purpose of the IBR .....	52
2.4.3 IBR Policy and Guidance .....	52
2.4.4 IBR Focus.....	53
2.4.4.1 Control Account Coverage .....	53
2.4.4.2 System Level Risk Assessments .....	53
2.4.4.3 Subcontractor Assessment .....	54
2.4.5 IBR Team .....	54
2.4.6 IBR Process.....	54
2.4.6.1 IBR Process Guidance .....	54
2.4.6.2 Assessing Readiness for the IBR.....	54
2.4.6.3 Baseline Scrub .....	55
2.4.6.4 Planning for the IBR .....	55
2.4.6.5 Conducting the IBR .....	55
2.4.6.5.1 Overview.....	55
2.4.6.5.2 Control Account Discussions .....	55
2.4.6.5.3 Documenting Risks during the IBR .....	56
2.4.7 IBR Results.....	56
<b>Part 2 Section 5 .....</b>	<b>57</b>
<b>Other Post Award Activities .....</b>	<b>58</b>
2.5.1 Overview.....	58
2.5.2 Maintaining the Performance Measurement Baseline (PMB) .....	58
2.5.2.1 Attributes .....	58
2.5.2.2 What is a Performance Baseline? .....	58
2.5.2.3 Incorporation of Authorized Changes.....	58
2.5.2.4 Internal Contractor Replanning .....	58
2.5.2.4.1 Guidance .....	58
2.5.2.4.2 Rolling Wave Planning .....	58
2.5.2.4.3 Replanning of the Remaining Baseline .....	58
2.5.2.5 Over Target Baselines (OTB) and Over Target Schedules (OTS) .....	59
2.5.2.5.1 Overview.....	59
2.5.2.5.2 Government Review and Approval .....	60
2.5.2.5.3 When to Use an OTB/OTS.....	60
2.5.2.5.4 Implementing an OTB/OTS .....	61
2.5.3 EVMS and Award Fee Contracts .....	61
2.5.3.1 General Concepts .....	61
2.5.3.2 Avoidance of EVMS Quantitative Metrics .....	62
2.5.3.3 Avoidance of Contract Management Milestones (such as IBR) as Criteria .....	62
2.5.3.4 Establishing Qualitative Criteria .....	62
2.5.4 Performance Data .....	62
2.5.4.1 Analysis of Performance Data.....	62
2.5.4.3 Principal Steps of Analysis .....	63
2.5.4.4 Further Guidance .....	63
2.5.4.5 Understanding the Contractor's EVM System.....	63
2.5.5 Training.....	64
2.5.5.1 Sources of Training .....	64
2.5.5.2 Formal Training .....	64





5.5.3 Contractor Sponsored Training .....	64
2.5.5.4 In-house training.....	64
2.5.5.5 Training Materials Available on Websites .....	64
APPENDIX A, Sample Memorandum of Agreement.....	65
APPENDIX B, Sample Statement of Work Paragraphs .....	67
APPENDIX C, Sample CDRL forms .....	70
APPENDIX D, Advance Agreement .....	82
APPENDIX E, Sample award fee criteria .....	87
APPENDIX F, Summary of EVM Implementation Actions .....	92
APPENDIX G, Essential elements of a business case analysis .....	93
APPENDIX H, Glossary of terms .....	92
APPENDIX I, Guidelines discussion and earned value management system evaluation guide. .....	100

---

## **FOREWORD**

Part I of this guide provides guidance for understanding EVMS concepts, describes objective guidelines for EVM systems, and provides guidance in interpreting those guidelines for use on Government contracts and programs. Part 2 contains a description of procedures and processes for Government personnel for specifying, evaluating, and implementing EVM systems. Part 2 also contains instructions and tailoring guidance for applying EVM requirements to contracts, an introduction to analyzing performance, baseline review and maintenance, and other post award activities. Additional reference material is contained in the appendices.

It should be noted that Department of Defense (DoD) EVM policy not only applies to contracts with industry, but to intra-government activities as well. Throughout this document, the term “contract” refers to both contracts with private industry as well as agreements with intra-governmental activities that meet the DoD reporting thresholds. Similarly, the term “contractor” refers to entities within both private industry and Government.

This document was developed to serve as the central EVMS guidance document for DoD personnel. Throughout the Earned Value Management Implementation Guide (EVMIG), additional references are made to additional sources of information, such as EVMS standards, handbooks, guidebooks, and websites. These additional sources should be consulted as appropriate. Figure 0-1 portrays the relationship of these documents and their content. Electronic copies or links to these documents may be found on the website [www.osd.acq.mil/pm](http://www.osd.acq.mil/pm).

**Revisions and Additions.** Persons using this guide are encouraged to submit suggestions for improvements to DCMA, DCMA-PID, 6350 Walker Lane, Suite 300, Alexandria, VA 22310-3241.

### Note to Readers of the Electronic Version:

Numerous hyperlinks and bookmarks are included in the document to make it easy for the reader to jump to a reference. In order to easily move back to the original point in the document, click the back arrow button on the Web toolbar. To see the Web toolbar, click on View, then Toolbars, then Web.

EVM GUIDANCE ROADMAP				
		Government		Industry
		Guidebooks	Guidecards	Guidebooks
Implementation	EVMIG	-EVMIG	-DAU Gold Card	-NDIA Application Guide
Compliance Evaluation		-DCMA Agency Instruction		-NDIA Systems Acceptance Guide-TBD
Integrated Baseline Reviews		-The PMs Guide to the IBR Process		-The PMs Guide to the IBR Process
Surveillance		-DCMA Agency Instruction		-NDIA Surveillance Guide
Analysis		-Guide to Analysis of EVM Data-TBD	-Analysis Roadmap -EAC -Logic Checks -Price at Completion	
OTB/OTS		-OTB/OTS Handbook	-Baseline/OTB	
EVM & Software		-NAVAIR Software EVM Toolkit		
IMS/IMP		-IMP/IMPS Preparation & Use Guide		
Schedule Development and Analysis		-OSD Guide to Developing, Managing, and Analyzing Program Schedules-TBD -DAU Scheduling Handbook		
Standards		-N/A		-ANSI/EIA-748
		-N/A		-ANSI/EIA-748 Intent Guide-TBD
EVM & Risk		-DoD Risk Management Guide		

TBD = To Be Developed or In Development

FIGURE 0-1 EVM GUIDANCE ROADMAP

[www.acq.osd.mil/pm](http://www.acq.osd.mil/pm) contains an electronic version of the above documents or electronic links to other websites.

## PART I: EARNED VALUE MANAGEMENT CONCEPTS & GUIDELINES

### PART 1 SECTION 1 - EARNED VALUE MANAGEMENT

**1.1 Concepts of Earned Value Management.** [Earned Value Management](#) (EVM) is a program management tool that integrates the technical, cost, and schedule parameters of a contract. During the planning phase, an integrated baseline is developed by time phasing budget resources for defined work. As work is performed and measured against the baseline, the corresponding budget value is “earned”. From this [earned value](#) metric, cost and schedule variances can be determined and analyzed. From these basic variance measurements, the program manager (PM) can identify significant drivers, forecast future cost and schedule performance, and construct corrective action plans to get the program back on track. EVM therefore encompasses both performance measurement (i.e., what is the program status) and performance management (i.e., what we can do about it). EVM is program management that provides significant benefits to both the Government and the contractor.

**1.2 EVM and Management Needs.** A fundamental requirement for managing any major acquisition system is insight into the contractors' performance specifically the program management and control. Proper EVM implementation ensures that the PM is provided contractor performance data that:

- relates time-phased budgets to specific contract tasks and/or statements of work (SOW)
- objectively measures work progress
- properly relates cost, schedule, and technical accomplishment
- allows for informed decision making and corrective action
- is valid, timely, and able to be audited
- allows for statistical estimation of future costs
- supplies managers at all levels with status information at the appropriate level, and
- is derived from the same EVM system used by the contractor to manage the contract.

**1.3 Uniform Guidance.** This document provides uniform guidance for DoD PMs responsible for implementing EVM. It also provides a consistent approach to tailoring EVM based on the particular needs of the program that is both cost effective and sufficient for integrated program management. Consistent application of this guide across all DoD acquisition commands should result in improved program performance and result in greater consistency in program management practices throughout the contractor community. Other federal agencies are encouraged to adopt this guide and adapt it as necessary to each agency's EVM policy.

## PART 1 SECTION 2

### EARNED VALUE MANAGEMENT SYSTEM GUIDELINES

**2.1 Earned Value Management System (EVMS).** Private companies use some form of business planning and control systems for management purposes. These planning and control systems have been tailored, adapted or developed for the unique needs of the company, and rely on a variety of software packages and information technology solutions. Many companies have adopted program management as a best business practice. Most of the basic principles of an EVMS are already inherent in good business practices and program management; however, there are some unique EVM guidelines which require a more intensive approach to the integration of management systems.

An [EVMS](#) can be defined as an integrated management system and its related sub-systems, which allow for:

- planning all work scope for the program to completion
- assignment of authority and responsibility at the work performance level
- integration of the cost, schedule, and technical aspects of the work into a detailed baseline plan
- objective measurement of progress (earned value) at the work performance level
- accumulation and assignment of actual costs
- analysis of variances from plans
- summarization and reporting of performance data to higher levels of management for action
- forecast of achievement of milestones and completion of contract events
- forecast of final contract costs and
- disciplined baseline maintenance and incorporation of baseline revisions in a timely manner.

**2.2 EVMS Guidelines Concept.** From its development in the 1960s to the present, EVM has been based on the premise that the Government cannot impose a single solution for an integrated management system for all contractors. As a result, the guidelines approach was developed. This approach recognizes that no single EVMS can meet every management need for all companies. Due to variations in organizations, products, and working relationships, it is not feasible to prescribe a universal system. The guidelines approach, on the other hand, establishes a framework within which an adequate integrated cost/schedule/technical management system fits. The EVMS guidelines are not prescriptive in nature, but simply describe the desired outcomes of integrated performance management across five broad categories of activity. These five categories are: organization; planning, scheduling, and budgeting; accounting; analysis and management reports; and revisions and data maintenance. The management processes organizing, scheduling, work/budget authorization, etc. cut across the five sections. A matrix showing the processes and guidelines interplay is provided in Figure 3-1.

**The EVMS guidelines do not describe or prescribe a specific system!** The guidelines are broad enough to allow for common sense application, but are specific enough to assure the buying activity of reliable performance data. Neither do they purport to address all of a contractor's needs for day-to-day or week-to-week internal control, such as informal communications, internal status reports, reviews, and similar management tools. These management tools are important and should augment the EVMS as an effective element of program management. Data from the EVMS should be the source for these management tools.

**2.3 EVMS Standard.** The EVMS guidelines have been published as an American National Standards Institute/Electronic Industries Alliance standard ANSI/EIA-748, Earned Value Management Systems. The DoD formally adopted ANSI/EIA-748 in August 1998 for application

---

to major defense acquisition programs. Industry periodically reviews the standard, and Revision A was published in 2002 without change to the basic guidelines. If the ANSI/EIA-748 standard is changed or updated, DoD will review and determine if the document still meets the Government's needs.

ANSI/EIA-748 Guidelines		PROCESS GROUPING									
		ORGANIZING	SCHEDULING	WORK/BUDGET AUTHORIZATION	ACCOUNTING	INDIRECT MANAGEMENT	MANAGERIAL ANALYSIS	CHANGE INCORPORATION	MATERIAL MANAGEMENT	SUBCONTRACT MANAGEMENT	
ORGANIZATION											
2-1a	Define authorized work	X									
2-1b	Identify Program Organization Structure	X									
2-1c	Company integration of EVMS subsystems with WBS and OBS	X									
2-1d	Identify organization/function for overhead (DCAA)					X					
2-1e	Integrate WBS & OBS, create control accounts	X									
PLANNING, SCHEDULING & BUDGETING											
2-2a	Sequential scheduling of work		X								
2-2b	Identify interim measures of progress, i.e. milestones, products, etc.		X								
2-2c	Establish time-phased budget (DCAA)			X		X					
2-2d	Identify significant cost elements within authorized budgets			X							
2-2e	Identify discrete work packages			X							
2-2f	All work package budgets & planning packages sum to control acct			X							
2-2g	Identify and control LOE budgets			X							
2-2h	Establish overhead budgets by organization element (DCAA)					X					
2-2i	Identify management reserve and undistributed budget			X							
2-2j	Reconcile program target cost goal with sum of all internal budgets			X							
ACCOUNTING CONSIDERATIONS											
2-3a	Record direct costs from accounting system (DCAA)				X						
2-3b	Summarize direct costs into WBS without allocation (DCAA)				X						
2-3c	Summarize direct costs into OBS without allocation (DCAA)				X						
2-3d	Record indirect costs (DCAA)					X					
2-3e	Identify unit costs, equivalent units costs or lot costs (DCAA)				X						
2-3f	Accurate material cost accumulation by control accounts; EV measurement at right time; full accountability of material (DCAA)							X			
ANALYSIS AND MANAGEMENT REPORTS											
2-4a	Control account monthly summary, identification of CV and SV (DCAA)				X		X				
2-4b	Explain significant variances						X				
2-4c	Identify and explain indirect cost variances (DCAA)					X					
2-4d	Summarize data elements and variances thru WBS/OBS for mgmt						X				
2-4e	Implement management actions as result of EVM analysis						X				
2-4f	Revise EAC based on performance data; calculate VAC (DCAA)					X	X				
REVISIONS AND DATA MAINTENANCE											
2-5a	Incorporate authorized changes in timely manner							X			
2-5b	Reconcile budgets with prior budgets							X			
2-5c	Control retroactive changes (DCAA)				X			X			
2-5d	Prevent all but authorized budget changes							X			
2-5e	Document changes to PMB							X			
<div>Legend</div> <div>X Key Process<div>Cross Process Area</div></div>											

FIGURE 2-1 GUIDELINES--PROCESS MATRIX

The 32 guidelines described in ANSI/EIA-748 provide a consistent basis to assist the Government and the contractor in implementing and maintaining acceptable EVM systems. It should be noted that the ANSI/EIA-748 contains a section on procedures for evaluating EVMS compliance; however, DoD personnel should follow the validation procedures described in Part 2, Section 3 of this document.

Instructions for obtaining ANSI/EIA-748 can be found through the following website: <http://www.assistdocs.com>, using EIA748 as the document identification number. The ASSIST site provides a shopping wizard tool to assist Government employees in obtaining a free copy of the standard. The standard is available for a fee to private individuals and companies through the ANSI website: <http://webstore.ansi.org/>.

The guidelines approach continues to provide contractors the flexibility to develop and implement effective management systems while ensuring performance information is provided to management in a consistent manner.

**2.4 System Design and Development.** In designing, implementing and improving the EVMS, the objective should be to do what makes sense. The EVM system that meets the “letter of the law” (guidelines) but not their intent does not support management's needs.

Contractors have flexibility under the guidelines approach to develop a system most suited to management needs. This approach allows contractors to use EVM systems of their choice, provided they meet the intent of the guidelines. Contractors are encouraged to establish and maintain innovative, cost effective processes, and to improve them continuously.

The responsibility for developing and applying the specific procedures for complying with the guidelines is vested in the contractor. Current DoD policy (DoDI 5000.2 Table E3.T2), Regulatory Information Requirements, requires that contracts that meet certain thresholds use an [EVMS](#) that complies with the ANSI/EIA-748 standard. NOTE: The March 7, 2005, DoD memorandum, Revision to DoD Earned Value Management Policy, serves as the interim policy until the DoDI 5000.2 is updated. In addition, the proposed EVMS may be subject to [validation](#). (See Part 2, Section 2 for information on thresholds for compliance and Section 3 for system validation.) In instances where the contractor's system does not meet the intent of the guidelines, the contractor makes adjustments necessary to achieve validation.

When the Government's solicitation package specifies [compliance](#) with ANSI/EIA-748 and [validation](#), an element in the evaluation of proposals is the prospective contractor's proposed EVMS. The prospective contractor should describe the EVMS to be used in sufficient detail to permit evaluation for validation with the guidelines. A discussion of both Government and contractor activities during the period prior to contract award is contained in Part 2, Section 2, Pre-contract Activities. Refer to the applicable Defense Federal Acquisition Regulation Supplement (DFARS) clauses for specific EVMS validation and compliance requirements for the contract.

**2.5 System Documentation.** Documentation of the EVMS should be established according to the standards of the company. It is good business practice to provide adequate policies and procedures to assure consistent application across the enterprise. Additional guidance for companies is contained in ANSI/EIA-748, Section 4. Documentation guidance for contracts that require EVMS compliance only is discussed in Part 2, Section 2, [paragraph 2.6.2.2](#).

Upon award of the contract, the EVM system description and documentation is used by the contractor in planning and controlling the contract work. The Government relies on the contractor's system and should not impose duplicative planning and control systems. Contractors are encouraged to maintain and improve the essential elements and disciplines of the systems and should coordinate system changes with the customer. For contracts that meet the threshold for ANSI/EIA-748 guidelines compliance and validation, these system changes are



approved by the Administrative Contracting Officer (ACO) in advance. Refer to the appropriate DFARS clause and Part 2, Section 2, paragraph 3.4 for more information on this requirement.

The Government PM and earned value analysts are encouraged to obtain copies of the contractor's system documentation and become familiar with the company's EVMS. Companies usually provide training on their system upon request. This enables the analyst to better understand how company processes generate EVMS data, impact of earned value measurement methodology, and requirements for customer approval of changes. DCMA [EVMS Specialists](#) assigned to a specific region or to a plant should have copies of the latest system documentation and be very familiar with the company's EVMS before beginning surveillance activities.

**2.6 Cost Impacts.** Since ANSI/EIA-748 has been published, the cost of implementing EVMS is considered part of the normal management costs that would have been incurred in any case. However, improper implementation and maintenance may create an unnecessary financial burden on the contractor and the Government. Typical areas where cost could be mitigated include selection of the proper levels for management and reporting, the requirements for variance analysis, and the implementation of effective surveillance activities. (See Part 2 for guidance on tailoring data items and constructing an effective surveillance plan.)

Differences arising from divergent needs of the Government and the contractor, such as the level of reporting detail, should be discussed during contract negotiations. While the guidelines are not subject to negotiation, many problems concerning timing of EVMS implementation and related reporting requirements can be avoided or minimized through negotiation. The Government customer and contractor should also periodically review processes and data reporting to ensure that the tailored EVMS approach continues to provide the appropriate level of performance information to management.

**2.7 Conclusion.** EVM and reporting have proven their value over many years. Application of the EVMS guidelines helps to ensure that contractors have and continue to apply adequate management systems that integrate cost, schedule, and technical performance. This approach also provides better overall planning, control, and disciplined management of Government contracts. Substantial improvements in management can be achieved by senior management and the PM if they undertake accountability for system effectiveness and use. An EVMS compliant with the guidelines, and properly used, helps to ensure that valid cost, schedule, and technical performance information continues to provide the PM with an effective tool for decision-making.

## PART 2 - PROCEDURES FOR GOVERNMENT USE OF EARNED VALUE

PART 2 provides procedures for Government personnel applying EVM to Government contracts. It should be remembered that throughout this document, the term “contract” refers to both contracts with private industry as well as to agreements with intra-governmental activities that meet the DoD reporting thresholds. Similarly, the term “contractor” refers to entities within both private industry and Government.

### PART 2 SECTION 1 APPLYING EARNED VALUE MANAGEMENT

**2.1.1 Overview.** EVM has been used to manage DoD acquisitions since the 1960s. Independent studies over the years have confirmed the validity of earned value as a program management tool; however, EVM has not always been consistently applied or used to manage programs. The intent of this guide is to improve the consistency of EVM application across DoD and within industry. When PMs begin to use EVM in its proper context as a tool to integrate and control program performance, the underlying EVM system and processes become self-regulating and self-correcting. PMs should lead this effort. The success or failure of EVM and ultimately, the success of the program itself, depends heavily on whether the PM fully embraces EVM and uses it on a daily basis.

Government PMs recognize the importance of assigning responsibility for integrated performance to the [Integrated Product Teams](#) (IPT). The earned value analyst should assist the PM in coordinating and integrating analysis; however, the ultimate responsibility for managing program performance rests with the PM and the IPTs.

Senior DoD acquisition officials also recognize the importance of industry ownership of EVM. In the mid 1990’s DoD adopted the industry version of the EVM guidelines, and is continuing to work with industrial associations for continual improvement of the entire EVM process.

Successful implementation rests on cooperation, teamwork, and leadership by the PM. There are different support organizations that assist the program team in tailoring and implementing effective EVM on a program. This section of the guide defines the roles and responsibilities of the various organizations, offices, and agencies within the DoD.

**2.1.2 Component Relationships.** A DoD component is defined as a service, organization or agency with acquisition authority. The Defense Contract Audit Agency (DCAA) and the DCMA are considered components of DoD. There are many organizations which depend on contractor-prepared and submitted earned value information, and it is important that the needs of each organization are acknowledged and recognized. These needs are balanced to ensure the wants of one do not encroach on the basic needs of another.

#### **2.1.3 Roles and Responsibilities.**

**2.1.3.1 DoD Acquisition, Technology and Logistics (OUSD/AT&L (ARA/AM)).** The office of the Undersecretary of Defense for Acquisition, Technology, and Logistics, Acquisition Resources and Analysis, Acquisition Management (OUSD/AT&L (ARA/AM)) oversees all EVM policy development within DoD.

**2.1.3.2 DoD Executive Agent.** DCMA is designated as the DoD Executive Agent for EVMS. The DCMA is responsible for ensuring the integrity and application effectiveness of contractor EVMS. To this point, the DCMA works with various Government and Industry teams to develop

practical EVMS guidance to ensure initial and ongoing compliance with EVMS guidelines in ANSI/EIA-748. As Executive Agent, the DCMA has formal cognizance of the maintenance of this guide and provisions included herein.

**2.1.3.2.1 EVMS Review Director and Team.** The Executive Agent designates a Review Director for all EVMS compliance reviews, including initial validation reviews, post award system reviews, and reviews for cause. The Review Director is responsible for preparing and executing a review plan that includes:

- Review Director's name, organization, and phone number;
- Contractor's name, division, location, and point of contact;
- Contract number;
- Basis, cause, purpose, and scope of the review; and
- Estimated starting date and duration of the review.

**2.1.3.2.2 Role of Executive Agent in Appeal Process.** Differences in interpretation of earned value implementation between interested parties within the Government and the contractor sometimes arise. These differences may include issues on guideline application and system review requirements. Attempts should be made to resolve these issues at the lowest levels. Those differences which cannot be resolved at the lowest level may be appealed to the Executive Agent for resolution. Either Government or contractor representatives may initiate an appeal. Participants in the appeal have the opportunity to provide appropriate rationale, exhibits, and discussion, as required, to support their positions. Pending resolution, the involved parties should continue to operate in accordance with the contractor procedures as implemented.

**2.1.3.3 Component EVM Focal Points.** Each component should establish a focal point to serve as a point of contact for coordination and exchange of information on EVM. The EVM focal point is responsible for effective policy implementation within their component, ensuring consistency with DoD policy and the provisions of this guide. The EVM focal point is usually assisted by an [EVMSS](#). These staff personnel are responsible for: disseminating current policy and providing advice, ensuring effective EVM implementation on new contracts, analysis of contractor performance reports, facilitating Integrated Baseline Reviews (IBRs), risk assessments, supporting surveillance activities to assess the EVMS management processes and the reports the system produces. Lists of appropriate contacts for Component and other Agency focal points are available at the OSD Earned Value website (<http://www.acq.osd.mil/pm>).

**2.1.3.4 Procuring Activity.** The responsibility for implementing EVM on a contract is assigned to the organization tasked with executing the procurement. This organization is normally referred to as the Procuring Activity. For purposes of this guide, the Procuring Activity is composed of the Program Management Office ([PMO](#)), the contracting organization, and the integrated Component activities that support the PMO. The PM and the PMO have the responsibility to help ensure that all solicitations and contracts contain the correct EVMS and Integrated Master Schedule (IMS) requirements, tailored as appropriate for the specific nature of the program in accordance with DoD policy. The PM and PMO also have the responsibility to conduct the [Integrated Baseline Review](#), perform integrated performance analysis, use this performance data to proactively manage the program, and accurately report performance to decision makers.

**2.1.3.5 Contract Management Office ([CMO](#)).** The CMO is the office that is assigned to administer contractual activities at a specific contractor facility or regional area in support of the PMO. The cognizant CMO is a part of DCMA, and the CMO may designate an [EVMS Specialist](#). Where contract administration responsibilities are retained by the Procuring Activity that organization functions as the CMO. Additional guidance regarding CMO functions is provided in this Guide, FAR Part 42, and the DCMA Instruction/Guidebook. The [Administrative Contracting Officer](#) (ACO) is authorized to execute the [Advance Agreement](#) (AA) or Letter of Acceptance (LOA) with the contractor that recognizes the contractor's EVMS validation. The ACO is also

---

authorized to withdraw this validation after certain procedures have been followed, as specified in paragraph 2.3.5 of this Guide. Some DoD agencies vest this responsibility in the procuring contracting officer (PCO) if an ACO has not been assigned to administer the contract.

**2.1.3.6 Contract Auditor.** The [Defense Contract Audit Agency](#) (DCAA) is responsible for conducting audits of the contractor's accounting and financial management system policies, procedures, and acceptability of contractor's incurred costs and estimates of costs to be incurred, including indirect costs and rates. The contract auditor assigned by DCAA also participates in surveillance and EVMS reviews.

## PART 2 SECTION 2 PRE-CONTRACT ACTIVITIES

**2.2.1 Overview.** This section provides EVM policy and general guidance for pre-contract activities, including preparation of the solicitation and contract, conduct of source selection activities, and tailoring of reporting requirements. The information provided in this section supports the policy contained in DoDI 5000.2 and guidance contained in the Defense Acquisition Guidebook. DoDI 5000.2 policy takes precedence over any guidance contained in this guide or any other OSD or subordinate guidebook.

### **2.2.2 General Guidance for Program Managers.**

**2.2.2.1 Work Breakdown Structure (WBS).** The program WBS is a key document that is developed by the PM and systems engineering staff very early in the program planning phase. The WBS forms the basis for the statement of work (SOW), systems engineering plans IMS, EVMS, and other status reporting. (See MIL-HDBK-881, Work Breakdown Structure Handbook, for further guidance.)

**2.2.2.2 Program Manager Responsibilities.** The PM has the responsibility to follow current DoD policy in applying EVM and IMS requirements to the proposed contract. EVM system requirements are defined in the contract [Statement of Work](#) (SOW) and in the applicable solicitation/contract clauses. (See paragraphs 2.2.5.2 and 2.2.5.3 for additional guidance.)

EVM reporting requirements are defined in the [Contract Data Requirements List](#) (CDRL). The PM should tailor reporting requirements based on a realistic assessment of management information needs for effective program control. The PM has the flexibility to tailor requirements that optimize contract visibility while minimizing intrusion into the contractor's operations. Government reporting requirements are to be specified separately in the contract through the use of a CDRL (DD Form 1423-1, or equivalent). These requirements should be contained in both the solicitation document and in the contract. The PM is also engaged in the evaluation of the proposed EVMS during source selection. See Appendix E award fee examples that can be used as a summary checklist of implementation actions.

### **2.2.3 Department of Defense Requirements.**

**2.2.3.1 Policy.** DoD policy mandates EVM for major acquisition contracts that meet the thresholds and criteria contained in DoDI 5000.2. NOTE: The March 7, 2005, DoD memorandum, subject Revision to DoD Earned Value Management Policy, serves as the interim policy until the DoDI 5000.2 is updated. (The thresholds are described below in paragraphs 2.2.3.1, .2, and .3 and Figures 2-1 and 2-2.) This is mandatory, unless waived by the Milestone Decision Authority (MDA). This policy also applies to highly sensitive classified programs, major construction programs, and automated information systems. In addition, it applies to contracts wherein the following circumstances exist: (1) the prime contractor or one or more subcontractors is a non-US source; (2) contract work is to be performed in Government facilities; or (3) the contract is awarded to a specialized organization such as the Defense Advanced Research Projects Agency. DoD policy also mandates that the EVM requirements be flowed down to subcontracts that meet the thresholds and criteria prescribed in DoDI 5000.2.

**2.2.3.2 Government Component Thresholds.** Thresholds are in then year or escalated dollars. When determining the contract value for the purpose of applying the thresholds, the total contract value, including planned options placed on contract at the time of award, should be used. The term "contracts and agreements" in the following paragraphs refers to contracts, subcontracts, intra-government work agreements, and other agreements.

**2.2.3.3 EVMS Compliance.** As prescribed in DoDI 5000.2, [compliance](#) with ANSI/EIA-748 is required for DoD cost or incentive contracts and agreements valued at or greater than \$20M. Compliance with ANSI/EIA-748 and an EVMS validation are required for DoD cost or incentive contracts and agreements valued at or greater than \$50M. If the contract value is less than \$50M, then formal

[validation](#) of the contractor's EVMS is not required; however, the contractor needs to maintain compliance with the standard. Contract reporting includes the Contract Performance Report ([CPR](#)) and the [IMS](#).

#### **2.2.3.4 EVMS Options.**

**2.2.3.4.1 Contracts Less than \$20M.** The application of EVM is not required on cost or incentive contracts or agreements valued at less than \$20M. The decision to implement EVM on these contracts and agreements is a risk-based decision, at the discretion of the PM, based on a cost-benefit analysis that compares the program risks vs. the cost of EVM implementation. The purpose of the cost-benefit is to substantiate that the benefits to the Government outweigh the associated costs. It does not require approval above the PM; however, if desired, it may be included in the program acquisition strategy. Factors to consider when making a risk-based decision to apply EVM on cost or incentive contracts or agreements valued at less than \$20M are as follows:

- The total contract value including planned options. If the value of a contract is expected to grow to reach or exceed \$20M, the PM should consider imposing an EVM requirement on the contract.
- Earned value implementation costs with respect to the total contract value. Implementation should not be seen as a cost driver.
- Type of work and level of reporting available. Developmental or integration work is inherently more risky to the Government and reporting should reflect how programs are managing that risk basis.
- Schedule criticality of the contracted effort to a program's mission. Items required to support another program or schedule event may warrant EVM requirements.

**2.2.3.4.2 Contracts Less than 12 Months in Duration.** EVM is also optional for contracts or agreements of less than 12 months in duration including options, since the cost and time needed for EVM implementation may outweigh any benefits received.

**2.2.3.4.3 Non-Schedule-Based Contracts.** The application of EVM to contracts that may be categorized as "non-schedule-based", i.e., those that do not ordinarily contain work efforts which are discrete in nature, should be considered on a case-by-case basis. "Non-schedule-based" contracts include:

- those compensated on the basis of "time and materials" (T&M) used, such as in time and material contracts,
- "services" contracts,
- any contracts composed primarily of [Level of Effort](#) (LOE) activity, such as program management support contracts.
- Indefinite Delivery/Indefinite Quantity (ID/IQ) or task order type contracts, within which work is awarded on the basis of delivery orders that may or may not be schedule-based.

"Non-schedule-based" contracts might not permit objective work measurement due to the nature of the work most of which cannot be divided into segments that produce tangible, measurable product(s). The nature of the work associated with the contract is the key factor in determining whether there will be any appreciable value in obtaining EVM information. In cases where the nature of the work does not lend itself to meaningful EVM information, it may be appropriate to waive the EVM requirement. When appropriate, waiver requests should be included in the program acquisition strategy. If the EVM requirement is waived for a contract due to the nature of the work, the PM should implement an alternative method of management control to provide advanced warning of potential performance problems.

Every effort should be made to identify, separate, and measure any discrete work from any work that is typically identified as LOE in nature. Since the earned value metric, [Budgeted Cost for Work Performed](#) (BCWP), is automatically earned for LOE activities, i.e., BCWP = Budget Cost for Work

Scheduled (BCWS), there can be no schedule variances for LOE activities. Also, since BCWP is not based on objective work measurement, the resulting [cost variances](#) are likely to be misleading.

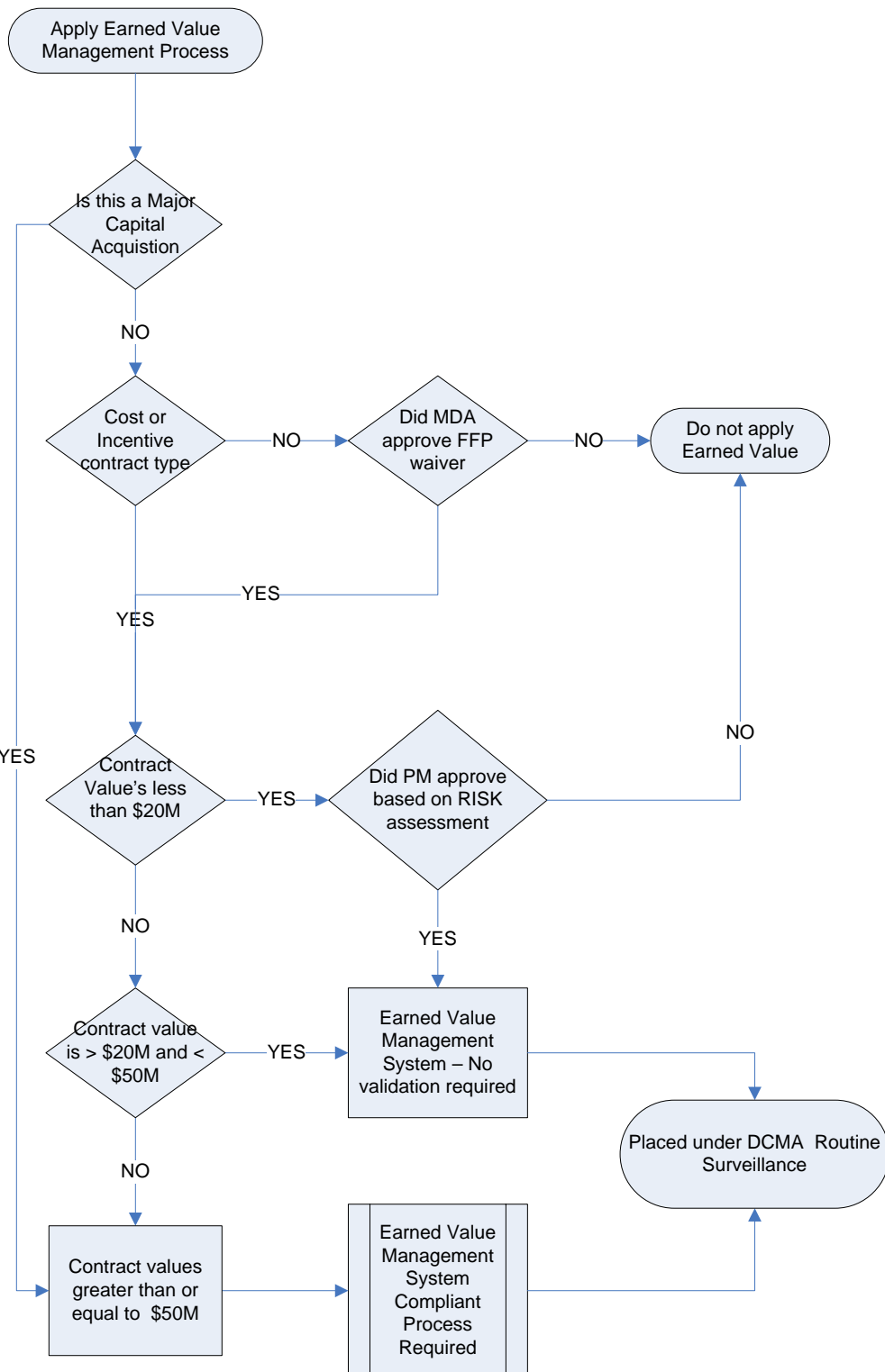


FIGURE 2-1 DECISION PROCESS FOR EVM APPLICATION



≥ \$50M	REQUIRED
Includes: Contracts for highly classified, foreign, and in-house programs.	<ul style="list-style-type: none"> <li>○ Must use ANSI/EIA-748 compliant and validated management system.</li> <li>○ CPR (all formats) is required.</li> <li>○ Integrated Master Schedule is required.</li> <li>○ Schedule Risk Assessment (SRA) is required</li> </ul>
Not required for: Firm-fixed price contracts. (Business case analysis and MDA approval required.)	
Not recommended for: Contracts less than 12 months in duration.	
May not be appropriate for: Non-schedule based contract efforts, e.g., level of effort.	

≥ \$20M but < \$50M	REQUIRED
Includes: Contracts for highly classified, foreign, and in-house programs.	<ul style="list-style-type: none"> <li>○ Must use ANSI/EIA-748 compliant management system. No validation.</li> <li>○ CPR Formats 1 and 5 are required.</li> <li>○ Integrated Master Schedule is required.</li> </ul>
Not required for: Firm-fixed price contracts. (Requires business case analysis and MDA approval.)	
Not recommended for: Contracts less than 12 months in duration.	
May not be appropriate for: Non-schedule based contract efforts, e.g., level of effort.	OPTIONAL
	<ul style="list-style-type: none"> <li>○ CPR Formats 2, 3, and 4 are optional.</li> <li>○ Schedule Risk Assessment is optional.</li> </ul>

< \$20M	OPTIONAL - USE JUDGMENT
Evaluate management needs carefully to ensure only minimum information needed for effective management control is requested.	<ul style="list-style-type: none"> <li>○ ANSI/EIA-748 compliance is discretionary and should be based on risk.</li> <li>○ CPR Formats 1 and 5 are recommended.</li> <li>○ Integrated Master Schedule is optional.</li> </ul>
Requires cost-benefit analysis and PM approval.	
Not recommended for: Contracts less than 12 months in duration.	
May not be appropriate for: Non-schedule based contract efforts, e.g., level of effort.	

Contracts designated as “major capital acquisitions” should be treated as contracts ≥ \$50M.

FIGURE 2-2 EVMS THRESHOLDS (IN THEN YEAR \$)

It is appropriate to waive the EVM requirement in cases where the nature of the work would not lend itself to meaningful EVM information. Exemptions from the EVM policy should be the exception, not the rule, because they are necessary only in cases where a cost or incentive contract is being used for non-schedule-based work. This type of work is typically accomplished using a Firm Fixed Price (FFP) contract.

**2.2.3.4.4 Monitoring Cost Expenditures in Lieu of EVM.** If desired, cost expenditures for any of the contract efforts discussed above in paragraphs 2.2.3.4.1 through 2.2.3.4.3 may be monitored and tracked with the application of the [Contract Funds Status Report](#) (CFSR) (DI-MGMT-81468).

**2.2.3.5 Contract Growth and Thresholds.** Determination of the applicability of EVM and IMS is based on the estimated contract price and the expected value of planned options at the time of contract award. Most contracts are modified as time progresses, and a significant number of contract modifications usually increases the contract value. In some cases, a contract that was awarded at less than \$20 million may later cross the threshold for EVM compliance or a contract awarded for less than

\$50 million may later cross the threshold for validation. Therefore, it is recommended that the increased total contract value be re-evaluated against the EVM thresholds for a new application of EVM. In no case should there be an attempt to deliberately circumvent EVM policy by excluding known work from the basic contract award and including it later as a contract modification. The PM should evaluate the total contract value including planned options and impose the appropriate EVM requirement based on that total value.

**2.2.3.6 Major Capital Acquisition.** Regardless of the contract value and thresholds, EVM may be mandated if the product or service being acquired is designated as a “major capital acquisition” in accordance with [OMB Circular A-11, Part 7, “Planning, Budgeting, Acquisition, and Management of Capital Assets”](#).

**2.2.3.7 Exclusions for Firm Fixed Price (FFP) Contract Type.** The application of EVM on FFP contracts and agreements is discouraged, regardless of dollar value. Since cost exposure is minimized in a FFP environment, the Government may elect to receive only the IMS in order to manage schedule risk. If knowledge by both parties requires access to cost/schedule data due to program risk, the PM should re-examine the contract type to see if an incentive contract is more appropriate for the risk. However, in extraordinary cases where cost/schedule visibility is deemed necessary and the contract type (FFP) is determined to be correct, the Government PM is required to obtain a waiver for individual contracts from the MDA. In these cases the PM conducts a [business case analysis](#) that includes supporting rationale for why a cost or fixed price incentive contract was not an appropriate contracting vehicle and rationale for EVMS application. (See [Appendix G](#) for guidance.) When appropriate, the business case analysis should be included in the acquisition approach section of the program acquisition strategy report. In cases where the contractor already has an EVMS in place and plans to use it on the FFP contract as part of their regular management process, EVM reporting requirements should be negotiated before applying an EVM requirement. However, nothing contained herein is meant to suggest that Government personnel should attempt to dissuade Government contractors who, pursuant to their internal program management policies, use EVMS on all contracts, irrespective of contract type, from their use of earned value techniques to manage FFP contracts.

**2.2.3.7.1 Factors to Consider in Applying EVM to FFP Contracts:** Some factors to consider in applying EVM in a FFP environment are as follows:

- effort is development in nature and involves a high level of integration
- complexity of the contracted effort (e.g., state-of-the-art research versus commercial off the shelf (COTS) procurement of items already built in large numbers)
- schedule criticality of the contracted effort to the overall mission of the program. Items required to support another program or schedule event may warrant EVM requirements
- since cost risk exposure is minimized in a FFP environment, the Government may elect to receive only the IMS in order to manage schedule risk
- nature of the effort, e.g., software intensive effort, is inherently risky
- contractor performance history as demonstrated by prior contracts with CPR data or documented in Contractor Performance Assessment Reports (CPARs)
- designation of the program as a "major capital acquisition" in accordance [with OMB Circular A-11, Part 7](#)

**2.2.3.7.2 Tailoring Reporting on FFP Contracts.** See paragraph [2.5.5.3.3](#) for guidance on tailoring EVM reporting on firm-fixed price contracts.

**2.2.3.8 Mixed Contract Types.** Additional care is taken when applying EVM compliance and performance reporting to a particular contract that is a mix of contract types. For example, a contract may be composed of cost plus incentive fee (CPIF), FFP, and T&M elements. The following general guidance applies in this circumstance: limit reporting to what can and should be effectively used. In some cases, it may be advisable to exempt portions of the contract from CPR or IMS reporting, if they do not meet the overall threshold or contract type criteria. Normally, different contracting types are applied to different contract line item number (CLIN) items, and these can then be segregated within

the WBS. Each portion of the contract that falls under a different contract type should be evaluated separately for EVM implementation, including CPR or IMS reporting. One caution that should be kept in mind is the potential impact to the CFSR, which can be applied to all contract types with the exception of FFP. It may be advisable to call for separate reporting by contract type in the CFSR. The following examples illustrate these concepts.

**Example 1:** The planned contract is a development contract with an expected award value of \$200M. At the time of award, the contract type is entirely cost plus award fee (CPAF). Subsequent to award, some additional work is added to the contract on a T&M CLIN.

**Solution:** Full EVM (validation and compliance) and CPR reporting should be applied at the time of award to the entire contract, but the T&M efforts should be exempted from CPR reporting at the time they are added to the contract. The T&M efforts are deemed low risk and are excluded from the IMS. However, the T&M efforts extend over several years and the PM wishes to have a separate forecast of expenditures and billings. The CFSR data item is therefore amended to call for separate reports for the CPAF and T&M efforts.

**Example 2:** The planned contract is a mix of development and production efforts, with a planned value of \$90M. At the time of award, the development effort is estimated at \$10M under a CPAF CLIN, and the production is priced as FFP for the remaining \$80M.

**Solution:** The PM conducted a risk assessment and concluded that the risk did not justify EVM and CPR reporting on the FFP production effort, nor was there sufficient schedule risk to justify an IMS. The PM noted that the development effort fell below the mandatory \$20M threshold, and determined that EVM was not applicable, based on a risk evaluation. However, a CFSR is determined to be appropriate for the development portion of the contract to monitor expenditures and billings. A CFSR would not be appropriate for production, as it is priced as FFP.

**Example 3:** A planned contract calls for development and maintenance of software. The overall value of the development portion is \$30M, and the maintenance portion is \$170M. Development is placed on a CPIF CLIN, while maintenance is spread over several cost plus fixed fee (CPFF) CLINs. It is anticipated that the majority of the maintenance effort should be LOE. The PM is concerned about proper segregation of costs between the efforts, and has determined that there is significant schedule risk in development. The PM is also concerned about agreeing up front to exclude the maintenance portion from EVM reporting. Since there is a specified reliability threshold that is maintained during the operational phase, performance risk has been designated as moderate. There are key maintenance tasks that can be measured against the reliability threshold.

**Solution:** EVM compliance and validation should be placed on the contract at the time of contract award. The CPR and IMS reporting are applied to the development portion at the time of contract award. Specific thresholds are established at contract award for variance reporting for the development effort. EVM and CPR reporting is also imposed on the maintenance portion of the contract. Format 1 reporting is established at a high level of the WBS, with Format 5 reporting thresholds for maintenance to be re-evaluated after review of the EVM methodology during the IBR. Variance reporting then specifically excludes WBS elements that are determined to be LOE. CFSR reporting is also required for the entire contract, with a requirement to prepare separate reports for the development and maintenance portions, since they are funded from separate appropriations. The IMS is required for the development effort, but not for the maintenance effort.

In conclusion, every contract is carefully examined to determine the proper application of reporting. The preceding examples were shown to illustrate the various factors that should be evaluated in determining the appropriate level of reporting. Every contract is different, and the analyst is encouraged to work with the PM and earned value staff officers to determine the appropriate requirements.

**2.2.3.9 IMS Exclusions.** The IMS is mandatory in all cases where EVM is mandatory; however, the IMS may be required when there is no EVM (CPR) requirement. The IMS is optional or not

recommended for those conditions described above where EVM is optional or not recommended. However, there is an additional consideration for exclusion of the IMS. Since the IMS is a network based schedule, it is most appropriate for development and low rate initial production (LRIP) contracts. The IMS is not typically applied to full rate production contracts. (See DI-MGMT-81650) Full rate production efforts are geared toward recurring activity and are not suitable for networking. These contracts are usually planned and managed using production schedules such as line of balance or material requirements planning (MRP) schedules. Generally speaking, these full rate production contracts are contracted on an FFP basis, which would require MDA approval for application of EVM and IMS.

**2.2.3.10 Exclusion Waivers.** Exclusion waivers of the mandatory reporting thresholds need to be approved by the MDA. Normally the selection of contract type should adequately reflect program risk, and as a result, waivers should not be required. However, in some cases, the contract type may meet the criteria for EVM and IMS reporting, but the PM may determine that the contract should be exempt. One example might be the award of a “fixed price incentive – successive target” contract in a mature, full rate production environment which establishes an overall price ceiling and gives the contractor some degree of cost responsibility in the interval before a firm arrangement can be negotiated. The PM evaluates the risk in the contract effort and makes a recommendation to the MDA for waiver based on the risk assessment.

**2.2.3.11 Support and Advice.** In structuring a procurement to include EVM requirements, the advice and guidance of the component EVM focal point should be sought by those preparing the solicitation package. However, the EVM focal point should not provide advice to program offices that contradicts official DoD policy. DoD components may establish the requirement for coordination among staff officers on solicitation packages to ensure consistency with DoD policy.

**2.2.4 Acquisition Plan.** A key document in the pre-contract phase is the Acquisition Plan. The Acquisition Plan details the process for procuring the required hardware, software and/or services. The procuring activity should explain in the management section of this document the reason for selection of contract type and the risk assessment results leading to plans for managing cost, schedule, and technical performance. Refer to the FAR, subpart 7.1.

## **2.2.5 Preparation of the Solicitation.**

**2.2.5.1 Major Areas.** The following discussion describes the four major areas of the solicitation package that need to contain EVM requirements. Of these areas, determine the latest revision of the document to apply to the contract. Each is described in more detail in the following sections.

<b>WBS</b>	Describes the underlying product-oriented framework for program planning and reporting
<b>DFARS clauses to</b>	Requires the contractor to use a compliant EVMS; May require the contractor use a validated EVMS
<b>Statement of Work</b>	Describes the work to be done by the contractor, including data items
<b>Contract Data Requirements List</b>	Describes the Government’s tailored requirements for each data item

**2.2.5.2 Work Breakdown Structure.** As discussed previously in paragraph 2.2.2.1, the WBS should be developed by the PM and systems engineering staff very early in the program planning phase. The program WBS contains all WBS elements needed to define the entire program, including Government activities. The contract WBS (CWBS) is the Government-approved WBS, for reporting purposes and its discretionary extension to lower levels by the contractor, in accordance with Government direction and the SOW. It includes all the elements for the products (hardware, software, data or services) which are the responsibility of the contractor.

The development of the CWBS is very important to the effectiveness of an EVMS. The WBS is the basic structure for EVMS data collection and reporting, and should be reflected in the detailed activities in the IMS. A too-detailed or poorly-structured CWBS can increase the cost of implementing and maintaining an IMS on a program.

A preliminary CWBS should be included in the solicitation and is usually specified to Level 3. The PM should exercise considerable care in its development, as providing too much detail to the contractor may have the adverse impact of restricting design trade space. The CWBS and dictionary requirements should be described in the SOW and called out on a CDRL using Data Item Description (DID) DI-MGMT-81334B. Appendix C, [Figure C-5](#), contains a sample CDRL for the CWBS.

The preliminary CWBS is expanded to lower levels after contract award by the contractor to reflect all work to be accomplished on the contract and to facilitate management, data collection, and reporting. There should only be one WBS that is used as the basis for all contract reporting. That is, a common WBS that follows MIL-HDBK-881 (applicability of revision is based on the revision of document at time of contract award unless otherwise specified.) is required for the CPR, the IMS, and the Contractor Cost Data Report (CCDR). The contractor should keep the CWBS dictionary current at all times and provide updates to the PM, as specified in the CDRL.

(For contracts that require contractor cost data reporting, the CWBS is also contained in the approved Cost and Software Data Reporting (CSDR) Plan that is included in the solicitation. The CSDR Plan is developed, approved, and maintained in accordance with DoD 5000.4-M-1, Cost and Software Data Reporting Manual, link to <http://dcarc.pae.osd.mil/> for further guidance.

**2.2.5.3 Defense Federal Acquisition Regulation Supplement (DFARS) Clauses.** The appropriate DFARS clauses should be included in the solicitation and the resulting contract. (See Figure 2-3.) There is a single set of clauses for EVMS compliance and validation, and a different set for EVMS compliance. The figure shows the application for each clause and a summary of the contents. See [the OSD EVM website](#) for the latest version of the clauses.

### EVMS Compliance & Determination

<b>252.242-7001</b>	<b>Solicitation</b>	Requires compliance with ANSI/EIA-748. Contractor shall document that he has an accepted system or show a plan to achieve validation.
<b>252.242-7002</b>	<b>Solicitations, Contract</b>	Contractor shall use the accepted system in contract performance or shall demonstrate compliance. Requires IBRs. Approval of system changes and OTB/OTS. Access to data for surveillance. Applicable to subs.

### EVMS Compliance

<b>252.242-7001</b>	<b>Solicitation</b>	Provide a written summary of management procedures or proof of acceptance. RFP states that Government validation is not required.
<b>252.242-7002</b>	<b>Solicitations, Contract</b>	Contractor shall comply with ANSI/EIA-748 in contract performance but validation is not required. Requires IBRs. Approval of OTB/OTS and notification of system changes. Access to data for surveillance. Applicable to subs.

FIGURE 2-3 DFARS CLAUSES

**NOTE:** Until there is a final rule on the new DFARS clauses, the existing clauses (252.242-7001 for solicitations and 252.242-7002 for contracts) should be used. For contracts valued at or greater than \$50 million, these clauses should be applied directly. For contracts valued at or greater than \$20 million but less than \$50 million, the following paragraph should be included in the SOW: "In regards to DFARS 252.242-7001 and 252.242-7002, the contractor is required to have an EVMS that complies

with ANSI/EIA-748; however, the Government will not formally accept the contractor's management system (no compliance review)." While not required, if a risk-based decision is made to require EVM on cost or incentive contracts valued at less than \$20 million or FFP contracts, the above paragraph should be included in the statement of work.

**2.2.5.4 Statement of Work (SOW).** The SOW should contain the following requirements. See [Appendix B](#) for sample SOW paragraphs.

- Contractor should develop the CWBS to the level needed for adequate management and control of the contractual effort. A single CWBS should be used for planning, managing, and reporting.
- Contractor should perform the contract technical effort using a guidelines-compliant EVMS that correlates cost and schedule performance with technical progress. The SOW should call for progress and problems to be presented and discussed in periodic program management reviews. Technical issues should be covered in terms of performance goals, exit criteria, schedule progress, risk, and cost impact.
- Designation of critical subcontractors, by name, for EVM compliance and validation or flow down of EVMS compliance to subcontractors.
- Integrated Program Management reporting should require a CPR, an IMS, a CFSR, and a contract WBS and dictionary. Data items are called out by parenthetical references at the end of the appropriate SOW paragraph. Specify if subcontractor CPR or IMS reports are to be included as attachments to the prime contractor reports.
- The SOW should also contain and describe the requirement for the IBR process. This establishes the requirement for the initial IBR to be initiated within six months after contract award/authorization to proceed (ATP) and for incremental IBRs as needed throughout the life of the contract for major contract changes involving replanning or detail planning of the next phase of program.

**2.2.5.5 Contract Data Requirements List (CDRL).** Excessive cost and schedule reporting requirements can be a source of increased contract costs. Careful consideration is given when preparing the CDRL to ensure that it identifies the appropriate data needs of the program and the appropriate DID. The CDRL provides contractual direction for preparation and submission of reports, including reporting frequency, distribution, and tailoring instructions. DD Form 1423-1 is used to specify the data item requirements and should contain any necessary tailoring.

In establishing the cost and schedule reporting requirements, the PM should limit the reporting to what can and should be effectively used. How the PMO is or may be organized to manage the effort should be considered and the reporting should be tailored to those needs.

**2.2.5.5.1 Reporting Requirements.** Figure 2-2 above portrays the current requirements for EVM and IMS reporting. Sufficient latitude exists within this framework to tailor reporting to the needs of most programs. Tailoring guidance for the CPR in FFP contracts is discussed in paragraph 2.2.5.6.3.4.

**2.2.5.5.2 Electronic Data Interchange (EDI).** The use of electronic media is required for all reports unless disclosure of this information would compromise national security. All data should be in a readable digital format (e.g., pdf files are not acceptable). The ANSI X12 standard (839 transaction set), the United Nations Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT) standard (PROCST message), or the XML equivalent are the accepted formats. On-line access to the data may be provided to augment formal submission. Requirements to submit reports by electronic means are included in the CDRL. If technology is not available to support X12 or XML IMS data submission, the IMS should be delivered electronically in the native digital format.

**2.2.5.5.3 General Tailoring Guidelines.** All parts of DIDs can be tailored as necessary per the tailoring guidance contained in this guide. However, there are prohibitions against adding requirements beyond the requirements in the standard DID. Tailoring is accomplished via the DD 1423-1, CDRL form. Any tailoring instructions, such as frequency, depth or formats required, are annotated on the CDRL forms.



The program office should have an internal process to review and approve all CDRLs for the contract. The EVMSS can provide assistance in tailoring. It should be stressed that the CPR and IMS are management reports and the CDRLs should therefore be prepared by or thoroughly discussed with the PM.

The CPR and the IMS apply to all contracts that meet the EVM applicability requirements. On contracts valued at or greater than \$20M but less than \$50M, it is recommended that CPR and IMS reporting be tailored. Tailoring to the specific needs of the program is highly encouraged and is described in greater detail below. Sample DD Forms 1423-1 for both the CPR and the IMS are included in [Appendix C](#).

#### **2.2.5.6 Tailoring Guidance for the Contract Performance Report (CPR)**

**2.2.5.6.1 Introduction.** The [CPR](#) is the means to convey information about the performance of a program or contract, and should always be carefully tailored to meet the needs of the PM and the program team. As such, the CPR is a useful means of communicating program status from the contractor to the customer. It should reflect how the contractor is using EVM as a tool to manage contract performance.

The primary challenge for the joint team is to tailor the report so that it meets these primary needs, rather than allowing it to degenerate into a “customer” report that can only be used to analyze historical costs. Careful attention is therefore required during the proposal and contract definitization stages to tailor the CPR DID ([DI-MGMT-81466A](#)). Discussions should be held, as appropriate, between the contractor and customer to discuss their joint needs for the report. Experience has shown that a joint approach helps assure that the reporting requirements of the customer are met, while meeting the needs of the contractor’s internal management culture and processes. This joint approach ensures that the CPR is a vital and viable tool for both contractor and customer.

**2.2.5.6.2 Risk Factors.** The following risk factors should be considered carefully by the Government PM when tailoring the DID.

**2.2.5.6.2.1 Complexity.** Complexity factors can usually be attributed to technical risk, schedule risk or cost risk. An integrated risk assessment (IRA) performed by the program team prior to contract award can help identify these risk factors and their interdependence. This analysis can pinpoint specific WBS elements with the highest risk which can be highlighted for more detailed reporting, i.e. reporting at lower levels of the CWBS on the CPR Format 1 (CWBS) and on Format 5 (Narrative Analysis).

Schedule risk is often underappreciated for its contribution to driving contract performance and cost overruns. The IMS requirement supports schedule assessment and identification of critical path impacts. Thorough [schedule risk assessment](#), with a focus on integration efforts (hardware/software, subcontractor effort, material, etc.) should identify those elements that require management attention. A formal schedule risk assessment (SRA) should be conducted by the PMO as early as possible in the planning phase to aid in refining the contract reporting requirements. (See paragraph 2.2.5.7.5 for related information on the requirement for the contractor to conduct SRA as part of the IMS.)

**2.2.5.6.2.2 Program Phase.** Generally speaking, development contracts contain much more risk than production contracts. It is usually more difficult to accurately forecast labor hour requirements and a realistic schedule for development efforts. As a result, the CPR Format 3 (Baseline) and Format 4 (Staffing) should take on more importance during development contracts to provide insight into the contract baseline and to help analyze performance and its relation to future problems. While also important for production or operations and maintenance contracts, the reporting frequency of Formats 3 and 4 for these contracts may be tailored for lesser frequency (e.g., quarterly).

The type and number of risk elements also differ depending on program phase. Technical risk, for example, is generally much higher during development than during production. It is critical for the PMO

to identify any risk areas for the contract to ensure adequate reporting visibility. This should be done prior to tailoring the CDRL. Areas of risk should be specified in the CDRL for more detailed reporting.

**2.2.5.6.3 Specific Tailoring Guidance for the CPR.** The complexity factors discussed in paragraph 2.2.5.6.2.1 should be considered when determining the degree of tailoring that is appropriate for the CPR data item for a given contract. The risk inherent to the program should be the prime consideration for tailoring of the CPR. Other factors to consider are the size of the contract, complexity of integration with other contract efforts, reliance on Government Furnished Equipment/Government Furnished Property (GFE/GFP), technology maturity, and type of contract.

#### **2.2.5.6.3.1 DD 1423-1, Blocks 10, 12, and 13**

**Block 10** (Frequency): Enter frequency. Normally, the CPR should be delivered monthly. (NOTE: If the contractor is using weekly EVM, weekly performance data may be provided as an adjunct to the submission of the full report. Normally weekly earned value data is for internal labor only and may be reported on Format 1. The contractor and Government should discuss data availability and delivery and tailor the CDRL as appropriate.

**Block 12** (Date of first submission): Normally, the first submission is specified to be made no later than 60 days after contract ATP.

**Block 13** (Date of subsequent submissions): Enter "See Block 16" and describe further in Block 16.

The CPR DID specifies delivery of the CPR no later than 12 working days after the end of the contractor's accounting period. This requirement may be tailored through contract negotiations to allow submission as late as 17 working days, provided that the contractor and Government agree that the program complexity and integration of subcontractor and vendor performance data warrants additional time and would yield more accurate performance data. Highly complex contracts that require a high degree of integration of performance reporting from contractor partners or subcontractors may require additional time to adequately integrate performance data. Contractors may also elect to attach subcontractor CPRs and/or reference this analysis in the prime contractor's Format 5 reporting submitted to the Government to gain time efficiencies and meet submission dates.

Flash Data: If desired by the Government and agreed to by the contractor, specify that Format 1 (and optionally Formats 2, 3, and 4) should be delivered as flash data within 7 working days and remaining formats be delivered no later than 17 working days.

Final submission: Final submission should be specified within Block 16 as well, and typically is specified as "when the last significant milestone/deliverable as defined by the contract has been achieved and remaining risk areas have been mitigated" with program office agreement/acknowledgement.

**2.2.5.6.3.2 DD 1423-1, Block 16:** This block is used to tailor the requirements in the DID. Tailoring can include: Format 1 reporting levels, required formats, reporting frequencies, designation of time periods for Formats 3 and 4, variance reporting thresholds, and delivery options. These are described below in more detail.

**2.2.5.6.3.2.1 Format 1 Reporting Levels.** The PM should carefully evaluate the CWBS reporting levels selected for routine reporting to ensure that only the minimum data necessary for effective management control and cost analysis requirements are obtained. The reporting level specified in the CDRL is normally at contract WBS level 3. Reporting may be specified at lower levels for complicated, high cost or high risk items. It is not necessary for reporting levels in different legs of the WBS to be the same. For example, reporting in the Prime Mission Equipment leg of the WBS may be at WBS Level four, while reporting in the Training leg may be at Level three. Program management personnel should determine the appropriate level. (Refer to the guidance in paragraph 2.2.5.6.2, [Risk Factors](#), for aid in selection of reporting levels.)



The reporting level of WBS elements should be evaluated periodically and changed, as necessary, to ensure that the CPR continues to satisfy the PMs needs.

If CCDR has also been placed on the contract, there may be a difference between the CCDR and CPR as to the allocation and reporting of [general and administrative](#) (G&A) indirect costs. CCDR requires G&A to be collected and reported separately as an “add” item on the CCDR reports. However, the CPR DID allows the contractor flexibility in assigning responsibility and allocating costs for all indirect costs (including G&A) across the WBS elements. If the contractor does allocate G&A to the WBS elements in the CPR, the program office may wish to ask for an additional CPR Format 1 coincident with the CCDR report submission that mirrors the non-allocation of G&A. The purpose of this additional Format 1 would be to reconcile with the CCDR reports, but this should not drive additional variance reporting or any additional format beyond Format 1.

**2.2.5.6.3.2.2 Selection of Formats.** Figure 2-4 should be utilized to help understand the content and uses of each CPR format. It provides guidance on the selection of CPR formats, per OSD policy.

**2.2.5.6.3.2.3 Reporting Frequencies.** The normal reporting frequency for all formats is monthly. However, this can be tailored as appropriate. Some contractors may use weekly EVM data and offer to provide it to the Government, and this can be negotiated and specified in Block 16. Certain formats may lend themselves to tailoring to less frequent reporting under certain circumstances. Refer to Figure 2-5 for guidance.

**2.2.5.6.3.2.4 Designation of Time Periods for CPR Formats 3 & 4.** The CPR DID requires the contractor to complete CPR Formats 3 & 4, columns 10 through 14, by specified periods or periodic increments, as negotiated with the procuring activity. The DID states that additional columns may be added as necessary to Format 3. Typically, the CDRL specifies that the next six months are separately identified, followed by either quarterly, six month or annual increments to complete. If desired, specify that the baseline and estimate to complete (ETC) be broken out by month until the end of the contract. The following paragraph provides an example of how the report periods might be specified in the CDRL. EXAMPLE: Formats 3 and 4 should contain baseline, ETC, and staffing forecasts by month for columns 4 through 9, then by three-month periods for columns 10 - 11, then by 12 month periods for the next two subsequent periods (cols 12 and 13), and the remainder of the contract for the last period (col 14).

**2.2.5.6.3.2.5 Variance Reporting Thresholds.** It is highly recommended that all requirements for Format 5 contained in the CPR DID (DI-MGMT-81466A) be retained. Variance analysis should contain the following narrative elements:

Summary Analysis

- Summary of Overall Contract Variances
- Differences Between EAC's (Blocks 6.A, 6.B, 6.C, Or Block 8.15)
- Changes in Undistributed Budget
- Changes in Management Reserve
- Significant Time-phasing Shifts In Baseline (BCWS) (Format 3)
- Significant Time-phasing Shifts or Overall Changes In Forecasted Staffing (Format 4)
- Discussion Of Over Target Baseline and/or Over Target Schedule Incorporation

Analysis of Significant Variances; (Identify And Describe Each)

- Type and Magnitude Of Variance
- Explanation of Significant Reasons
- Effect on Immediate Task
- Effect on Total Contract
- Correct Actions Taken or Planned

<b>Format Title</b>	<b>Frequency</b>	<b>Description</b>	<b>Use of Format</b>	<b>Selection</b>
<b>1. Work Breakdown Structure</b>	Monthly or weekly basis as provided in contract	Reports performance data (BCWS, BCWP and ACWP) by reporting WBS elements for the current reporting period as well as cumulative to date data. Cost and schedule variances are calculated and reported. Identifies any reprogramming adjustment, budget at completion, estimate at completion, and variance at completion by element. Also shows management reserve and undistributed budget. It can also show indirect costs if requested.	Isolate key cost and schedule variances, quantify the impact, analyze and project future performance. Performance issues isolated at lowest level and analyzed for impact to overall cost and schedule variances.	\$20M contracts: Mandatory. Recommended for small contracts <\$20M.
<b>2. Categories</b>	Monthly or weekly basis as provided in contract	Reports the same data as Format 1 but identified by contractor functional labor categories, major subcontractors and material.	Same uses as Format 1, but provides for analysis of internal (labor) variances or external (subcontractor/material) variances.	\$50M contracts: Mandatory.  \$20M but <\$50M contracts: Optional, but recommended for development contracts or contracts with significant outsourcing efforts.
<b>3. Baseline</b>	Monthly, quarterly or semi-annually. Monthly recommended for development or high risk contracts.	Budgeted time-phased baseline costs to end of program. This format shows significant baseline changes authorized during the reporting period. Data includes contract budget base, total allocated baseline, completion dates, and management reserve.	Data can be plotted to determine if there has been a shift in the baseline curve since the previous report. Analysis can focus on the distribution of cost for authorized changes to the baseline during the period. Used to determine if Over Target Baseline or Over Target Schedule has been incorporated into the program.	\$50M contracts: Mandatory.  \$20M but <\$50M contracts: Optional, but recommended for development contracts.  Not useful for shorter duration contracts (less than two years).
<b>4. Staffing</b>	Monthly, quarterly or semi-annually. Monthly recommended for development or high risk contracts.	Staffing forecasts in months by functional category until the end of the contract.	Staffing data plotted over time and correlated to major milestones and activities on the contract schedule shows accuracy of labor estimates. Projected staffing levels should be analyzed for consistency with scheduled activities. Correlate this analysis with Formats 2 and 3.	\$50M contracts: Mandatory.  \$20M but <\$50M contracts: Optional, but recommended for development contracts.  Not useful for shorter duration contracts (less than two years).
<b>5. Explanation and Problem Analyses</b>	Monthly	Narrative explanation of key cost, schedule, and variance at completion variances. Contractor describes reasons, program impacts, and corrective action plans for significant drivers at the lowest specified level and at the total contract level. Includes analysis of MR, undistributed budget, and overall risk.	Correlated with data from Formats 1 and 2 to understand reasons for the variances. Understanding the underlying reasons and the contractor's get well plans help the analyst prepare an integrated assessment of past and future trends and analyze overall executability. PM can then make informed decisions.	\$20M contracts: Mandatory.  Recommended for small contracts <\$20M.

FIGURE 2-5 CONTRACT PERFORMANCE REPORT (CPR) FORMATS

The Government should require the minimum amount of variance analysis in Format 5 which satisfies its management information needs, but yet adequately addresses all [significant variances](#). Excessive variance analysis is burdensome and costly, and detracts from the CPR's usefulness, while too little information is equally undesirable. The contractor should be encouraged to submit Format 5 in contractor format. Formal or informal feedback to the contractor on a regular basis leads to continued improvement in the quality of the Format 5.

Block 16 should include a statement that cost and schedule variance analysis thresholds be reviewed periodically (normally semiannually) to determine if they continue to meet the Government's information needs. If they do not, the thresholds should be changed at no cost to the Government. There is no prescribed basis for identification of significant cost and schedule variances for Format 5 reporting. The Government may specify any one of several ways to identify such variances, including, but not limited to the following:

Fixed Number of Variances. Specify the number of variances to be analyzed, e.g., ten, twenty, etc. The significance of these variances can be based on any of the following: current month, cumulative to date, at-completion estimates or assessments of risk areas as identified through the Government/contractor management review process. Any number of significant variances may be selected, but the Government should be careful to select only the number needed for effective program management.

Percentage or Dollar Thresholds. Select variances to be analyzed based on percentage or dollar thresholds, or a combination of both. For example, all current month, cumulative or at-completion variances +/- 10% may be selected for analysis. If selecting variances based on dollar thresholds, specify the variances as plus or minus some dollar amount, e.g., +/- \$25K. The dollar amount selected should be appropriate for the value of the effort involved. A variation of this method is to select variances based on both percentage and dollar thresholds. For example, all current, cumulative or at-completion variances +/- 10% and +/- \$50K may be selected for analysis. The thresholds should be reviewed periodically to ensure they continue to provide a reasonable amount of useful information.

Specific Variances. In this methodology, the PMO selects elements for variance analysis only after reviewing Format 1 or 2. Using this method, the CPR is delivered promptly after the contractor's accounting period ends, with all required information in Formats 1 through 4. Once the Government has reviewed this performance data, it selects specific variances for analysis by the contractor. This method may be the most efficient since the Government can pinpoint areas to be analyzed. It is also the most flexible because there may be some months when a review of the performance data yields few or insignificant variance analysis candidates. However, this method should only be used if the Government is certain it has sufficient resources to review each monthly CPR promptly to select the variances for which explanations are needed.

Contractor Determined Significant Variances. Using this methodology, there are no predetermined variance thresholds, as the contractor selects the significant variances for reporting each month. The Government reserves the right to modify the CDRL and to designate specific variance thresholds should the contractor continue to select too few variances for analysis and reporting.

**2.2.5.6.3.3. CPR Tailoring on Cost or Incentive Contracts Valued at Less Than \$20M.** If an EVM reporting requirement is applied on cost or incentive contracts valued at less than \$20M tailoring may be less stringent than for contracts required to comply with ANSI/EIA 748. CPR Formats 1 and 5 are recommended and variance analysis can be scaled down to include the top 5 or 10 variances. Variance analysis for the current period is also an option. The level of reporting is dependent on the contract risk regardless of value. The following tailoring options are available depending on the level of risk.

- Significant variances can be identified and defined by the contractor.
- CPRs may be submitted entirely on line.
- Formal variance analysis may be replaced with internal reports or status meetings.

**2.2.5.6.3.4 CPR Tailoring Guidance for Firm Fixed Price Contracts.** Only the MDA can grant a waiver allowing application of EVM to a FFP contract (see paragraph 2.2.3.1). Once granted, only the minimal EVM requirements necessary to provide the Government team with the desired visibility into program performance should be applied. Since cost exposure is minimized in a FFP environment, the Government may elect to receive an IMS in order to manage schedule risk. In addition to the tailoring guidance described in the preceding paragraphs, the following guidance should aid in tailoring the CPR for FFP contracts.

**2.2.5.6.3.4.1 Formats 1 and 2.** The contractor may wish to preserve the company's competitive edge for future contracts by not divulging the costs (and therefore profit margin) of a FFP contract. The Government may consider allowing the contractor to report Format 1 and 2 internal costs by labor hours (not dollars), and may further roll up reporting to a high level of WBS reporting. Reporting of labor hours would preclude inclusion of material dollars on either format. Alternatively, the Government may consider performance reporting at the price level (fees included) for Formats 1 and 2. Under this option, the contractor develops a cost to price factor and applies it evenly across all data in all reporting periods. The CDRL should specify that independent checks of the correct application of this factor be conducted at various points throughout the contract. The CDRL should also specify that the cost to price factor be baselined, uniformly applied, and not modified during execution, in order to prevent front loading or restriction of actual costs to the capped price level.

**NOTE:** These exceptions from standard CPR reporting on Format 1 do not apply to contracts that have CCDR requirements. These contracts report costs by CWBS and the total profit/fee as a separate line item, in accordance with DoD 5000.4-M-1, Cost and Software Data Reporting Manual, and the CWBS DID (DI-MGMT-81334B).

**2.2.5.6.3.4.2 Format 3.** This format is optional for FFP contracts, but may be required when there is a high potential for significant changes in requirements or sequence of activities. It may be important for the PMO to understand the changes to time phased resources in the baseline.

**2.2.5.6.3.4.3 Format 4.** Not recommended for FFP contracts.

**2.2.5.6.3.4.4 Format 5.** In addition to the [standard recommendations](#) for selection of significant elements, the Government should consider the nature of the contract work and the rationale for applying EVM to the FFP contract. Completion of the business case analysis should help the PM target the risky elements of the contract for variance reporting.

If concerned more about schedule performance than cost performance, the Government may limit or eliminate variance analysis of the significant cost and VAC, focusing attention on schedule variances.

Another alternative is to eliminate the Format 5 altogether, and to rely on the written analysis provided as part of the IMS data item.

Format 5 may even be considered optional if the contractor and Government agree on alternate methods of understanding performance, e.g., weekly team status meetings, on line access to contractor internal reports, statused assembly or line of balance schedules.

#### **2.2.5.6.3.5 Format of CPR Delivery.**

**2.2.5.6.3.5.1 Contractor Format.** The CPR DID contains a sample format for all five CPR formats, but also states that contractor format is acceptable. As long as all reporting elements

are contained in the contractor's format to the extent needed, this should be accepted and even encouraged by the customer as a cost saving measure.

**2.2.5.6.3.5.2 Electronic Format.** The CPR DID specifies that all formats be in a readable digital format (e.g., pdf files are not acceptable) or be made available on line for downloading through electronic links. The ANSI X12 standard (839 transaction set), the UN/EDIFACT standard (PROCST message), or the XML equivalent should be used to submit data electronically to the procuring activity. Contractor formats may be substituted whenever they contain all of the required data elements at the specified reporting levels and are compliant with the X12 standard, XML schema or equivalent. (NOTE: Until the ANSI X12/XML standards are redefined to incorporate the changes to the forms, the new data elements are reported in Format 5.) The EDI requirement should not be tailored out.

**2.2.5.6.3.5.3 Paper Submissions.** The CDRL may specify receipt of one paper copy of the report for the official program files, in addition to EDI transmittal. (NOTE: that commercial analysis tools allow the program office to print copies of the CPR for any month contained in the database.)

## **2.2.5.7 Tailoring Guidance for the Integrated Master Schedule (IMS)**

**2.2.5.7.1 Introduction.** The CDRL for the IMS ([DI-MGMT-81650](#)) submission should focus on the requirements needed for schedule management. These schedules contain an integrated network of tasks, subtasks, activities, and milestones with sufficient logic and durations to perform the SOW. The IMS is developed by the contractor in conjunction with the contract WBS and if applicable, the Integrated Master Plan (IMP).

The IMS is intended to show “how” and “when” the IMP is accomplished. It should be an extension of the information contained within the IMP or high-level program plan, reflecting the events, significant accomplishments, and criteria identified in the IMP but also tasks subordinate to the criteria. IMS quality should be such that it provides a key tool for ensuring consistency of actions and unity of purpose among program team members. The IMS should describe a realistic and supportable schedule consistent with the IMP. The network should determine the flow of the IMS.

The IMS is an integrated, networked schedule containing all the detailed discrete work packages (WPs) and planning packages (PPs) (or lower level tasks/activities) necessary to support the events, accomplishments, and criteria of the IMP (if applicable). The IMP events, accomplishments, and criteria are duplicated in the IMS. Detailed tasks are added to depict the steps required to satisfy each criterion. The IMS should be directly traceable to the IMP and should include all the elements associated with development, production, and/or modification and delivery of the total product and/or program high level plan. Durations are entered for each discrete WP and PP (or lower level task/activity), along with predecessor/successor relationships, and any constraints that control the start or finish of each WP and PP (or lower level task/activity). The result is a fully networked “bottoms up” schedule that supports critical path analysis. It should be noted that although durations are assigned at the work package and planning package (or lower level task/activity) level, these durations roll up to show the overall duration of any event, accomplishment or criterion. When LOE work packages or tasks/activities are included in the IMS they should be clearly identified as such. LOE should never drive the critical path(s).

**2.2.5.7.2 Specific Tailoring Guidance for the IMS.** The complexity factors discussed in paragraph 2.[2.5.5.2](#) also apply to tailoring of the IMS data item. The risk inherent to the program should be the prime consideration for tailoring of the IMS. Other factors to consider are the size of the contract, complexity of integration with other contract efforts, reliance on GFE/GFP, technology maturity, and type of contract.

### 2.2.5.7.3 DD 1423-1, Blocks 10, 12 and 13

**Block 10** (Frequency): The IMS should be submitted no less frequently than monthly. The IMS may reflect data as of the end of the calendar month or preferably as of the contractor's accounting period to ensure consistency and traceability to the CPR.

**Block 12** (Date of first submission): The first submission may be tailored to reflect a higher level of planning or a detailed IMP and subsequent submission of the IMS should be detailed to the DID specifications.

**Block 13** (Date of subsequent submissions): Enter "See Block 16", and describe further in Block 16. In order to align with the CPR submittals the IMS should be delivered no later than 12 working days after the end of the contractor's accounting period. Please note that the most current schedule should be available as soon as the statusing process is complete.

**2.2.5.7.4 DD 1423-1, Block 16:** IMS tailoring can include: level of detail, reporting frequencies, variance reporting, and Schedule Risk Analysis (SRA). These are described below in more detail.

**2.2.5.7.4.1 IMS Tailoring Guidance for Contracts Valued At or Greater Than \$20M But Less Than \$50M.** The Government monitors the progress of contracts valued at \$20M - \$50M with the IMS. As with the CPR, requirements for variance reporting and SRA can be tailored. While there is no "standard" size for an IMS, the contractor should strive to build the IMS of sufficient detail to fully describe the program for the Government's evaluation and to manage their own day-to-day execution and monthly control of the program/project and the Performance Measurement Baseline (PMB). Of prime importance, and basic to all network schedules, is the identification of workflow interdependencies at the appropriate level to identify the critical path. The analysis should include a critical path narrative describing the current critical path to the program and/or the next planning block milestone (e.g. Preliminary Design Review (PDR), Critical Design Review (CDR), 1st Flight, etc.), changes to the critical path, and IMP and/or major program milestone impacts. The contractor may wish to eliminate the requirement to monitor and report near critical path progress. Also, variance reporting including thresholds may be adjusted to reflect the size and complexity of the contract. The contractor may wish to perform the SRA on a less frequent basis prior to the start of selected critical milestones like PDR, CDR, Flight Test, etc.

#### 2.2.5.7.4.2 Statusing the IMS.

The IMS is statused at least as often as the CPR is generated. It is time-synchronized in accordance with all stakeholder updates/status (e.g. vendors, subcontractors, and customer activities). The IMS status cycle should consider all organizational calendars and a common status date established for the integration of schedule data.

**2.2.5.7.4.3 Analyzing and Reporting the IMS.** The IMS is analyzed and reported on a monthly basis (as a minimum) in accordance with the DID as tailored by the CDRL. Analysis should be performed at the lowest level; i.e. the level at which tasks are linked, constrained, and where durations are estimated. The primary focus of the analysis is on the critical path and near critical paths to identify schedule risk and opportunity. All progress and exceptions (missed baseline starts and finishes) to date should be reported by WBS to facilitate traceability to the CPR. The 'lowest level' must be defined and a requirement to link to the WBS established.

The analysis should explain changes to critical path or near critical path WPs and PPs (or lower level tasks/activities) from submission to submission as well as any changes to the IMP. The impact of critical path changes on major program milestones or other major schedule risk areas should also be discussed. Work around and/or recovery schedules/plans, and associated impacts due to program changes should also be provided. The schedule narrative should address progress to date and discuss any significant schedule changes such as added/deleted

work package(s), planning package(s) or task(s)/activity(s), any significant logic revisions, and any/all changes in programmatic schedule assumptions.

Finally, the analysis should, if required, be able to forecast future potential delays and/or potential problems. This type of analysis should be done as needed and provided to the customer and the program team to assist in the schedule risk mitigation process.

**2.2.5.7.4.4 IMS Reporting Levels.** The reporting level of the networked schedule should be commensurate with the assessed level of risk in the contract. High-risk efforts should drive the requirement for the most detail in the IMS with documented mitigation/recovery plans, ground rules, and assumptions. All mitigation/recovery plans should be placed within the IMS upon proper approval. High-risk schedules, including development and LRIP efforts, should be in the form of a networked schedule that allows calculation of a critical path. As the program progresses through the acquisition phases, risk typically declines and the level of detail and oversight may be decreased.

The program critical path is the sequence of discrete tasks/activities in the network that has the longest total duration through the contract. Discrete tasks/activities along the critical path have the least amount of float/slack. The standard for a networked schedule means that all discrete contractual tasks or activities are logically networked both horizontally and vertically with predecessor/successor logic, duration, and resources (when available) such that an accurate critical path can be electronically calculated by the scheduling software application. (NOTE: Far term activities may be held at a higher level of definition, but should still be included in the network calculation.) The critical path also includes the associated critical path program milestones, key tasks/activities and IMP events. Schedule logic should exist at the lowest level within the schedule, and the use of constraining dates should be minimized. Following these general principles should result in a valid schedule network and critical path. A fully networked schedule is always advisable.

A detailed network schedule should clearly identify activities, product hand-offs and deliverables from internal and external interfaces, from the lowest level of contract tasks/activities up to the summary level schedule activities and milestones. The determination of external significant and critical interfaces to be identified within the IMS requires agreement between the contractor and Government and is documented accordingly.

LOE activities may be included or excluded in the network as appropriate. This determination should be made based on contractor standard procedures. LOE activities should not normally drive the critical path; and this can be avoided by including LOE activities on the IMS without network logic. If LOE activities are included within the IMS, they are clearly identified as such. As a best practice, understand that LOE work package (or lower level task/activity), by definition, cannot influence an event-driven schedule and are not required to be included in the IMS. However, if inclusion is desired to maintain consistency with the cost system they should be included in such a way that they do not yield erroneous critical paths. LOE is required to be in the IMS whenever a resource-driven schedule is constructed utilizing resource limitations/constraints. In these cases, LOE is required to be included in the schedule along with the interdependencies with discrete work.

**2.2.5.7.4.5 IMS Level of Detail.** There is no “standard” size for an IMP/IMS. The contractor should strive to build an IMP and IMS of sufficient detail to fully describe the program for the Government’s evaluation and to manage their own day-to-day execution of the program after contract award. The contractor should succinctly describe the work required to complete the contract in sufficient detail to fully demonstrate an understanding of the scope and flow of the work. The size of the resulting IMP and IMS is dependent on numerous factors such as the length, content, and complexity of the contracted program, the amount of new development, the technical risk and associated risk mitigation activities, and the scope of required testing. An IMS summarized at too high a level may often result in masking critical elements of the plan to execute the program, and fail to show the risk management approaches being used. Further, it may often result in long duration tasks and artificial linkages, which mask the true critical path.



Conversely, too much detail can make it more challenging to status and assess the IMS during execution.

Of prime importance, and basic to all network schedules, is the identification of workflow interdependencies at the appropriate level. The IMS should consist of master and summary schedules and related subordinate schedules that provide a logical sequence, at a minimum, from the master to the detailed work package and planning package levels. In so doing, the schedules can provide for the interdependent sequencing of all work authorized on the contract in a manner compatible with IMP events and/or key milestones. Detailed subordinate schedules include, at a minimum, all discrete WPs and PPs (or lower level tasks/activities) as determined by the contactor's internal processes. If difficulty is found with identifying logical ties to other discrete work, the connection to the next succeeding IMP event and/or key milestone is recommended. The IMS should be defined to the level of detail necessary for day-to-day execution and monthly control of the program/project and the PMB.

**2.2.5.7.5 Schedule Risk Assessment (SRA).** The IMS DID contains a tailorable requirement for the [SRA](#), which is a proven risk reduction scheduling practice. It is to be completed in accordance with the CDRL requirements (which can be used to tailor DID requirements) and in conjunction with the Integrated [Baseline Review](#) (IBR). The SRA should be completed on a recurring basis and/or at key points in a development contract, for example, quarterly, semi-annually, and/or prior to selected critical milestones like PDR, CDR, Flight Test, etc. LRIP contracts may only need to have an SRA performed at the start of the contract.

**2.2.5.7.5.1 Purpose and Method.** The purpose of a SRA is to provide the program management team with an understanding of the potential schedule impacts associated with existing/emerging program risks. These assessments compute the probability of completing key milestones, events, WPs, PPs or tasks/activities by specific dates.

The SRA employs software that uses Monte Carlo simulations for each of the work package and planning package (or task/activity) given the range of remaining duration, for the purpose of determining a cumulative confidence curve. The software performs simulated "runs" of the entire program schedule many times while randomly varying the remaining durations according to a probability distribution. The results indicate a "level of confidence" for completing key milestones, events, WPs, PPs (or tasks/activities) by specific dates. The contractor uses their own SRA software to conduct their assessment; the Government SRA is performed with the SRA software of their choosing.

**2.2.5.7.5.2 SRA for Assessments.** A SRA may be specified in the CDRL as either a submittal to the customer or as a review by the customer or both. It also documents the expectations for a SRA review by both the prime contractor and the Government.

When a SRA submittal is requested, the prime contractor performs the assessment and submits to the customer at the required CDRL intervals. As part of their SRA requirement, the prime contractor reports optimistic, pessimistic, and most likely remaining durations for each work package, planning package and/or task/activity on the program critical path and critical path and near critical paths to selected major milestone(s) with documentation of the assumption and rationale of the three point estimates.

When a SRA is specified in the CDRL as part of the risk management process, the Government conducts periodic SRA with the participation of the prime contractor to provide the program management team with an understanding of the potential schedule impacts.

The prime contractor conducts a SRA and submits the assessment and three point duration estimates and rationale to the Government. The three point remaining duration estimates, supporting rationale, and assumptions should be reviewed by Government technical (or other qualified) personnel. Where there are questions or differences in opinion, the Government



technical expert contacts the Control Account Manager (CAM) to discuss and try to reach an understanding or agreement.

For those CAMs with whom agreement on the three point duration estimates cannot be reached, interviews may be conducted at the contractor's facility with pre-selected CAMs to try to reach an understanding or agreement. For purposes of efficiency it is important that the interview be completed in the shortest time possible. A SRA should then be conducted. If there are remaining differences in three point duration estimates or assumptions and rationale, then the contractor and Government should conduct separate SRAs.

**2.2.5.7.5.3 SRA Guidelines.** The following guidelines should be used when performing a SRA:

1) For the risk assessment to be successful, the network schedule (or IMS) is developed and maintained appropriately. Prior to performing the SRA, the network schedule should be reviewed to ensure that it is accurate.

2) At a minimum, any program risk classified as "High Risk" should be represented in the IMS including any key mitigation steps that have been identified. The Risk Identifier should be coded on each corresponding task/activity in the IMS (Risk ID Field) to provide traceability to the Risk Management Process and provide additional visibility within the IMS.

3) The assessment should be performed on the program critical path and critical path and near critical paths to selected critical milestones.

- a. Test Program Critical Path – longest path through entire program
- b. Test Critical Path to next major milestone(s)
- c. Test near Critical Paths to next major milestone(s)

4) In cases where the schedule risk is known, i.e., critical and near critical paths, three point remaining duration estimates should be established by the CAM based on the likelihood of the risk occurring and the consequences if the risk is realized. The CAM establishes the minimum, most likely, and maximum remaining durations. The rationale used to establish the remaining durations should be documented. Global Weighting Values should be used to establish min and max remaining duration estimates for tasks not identified as being on the critical and near critical paths. The "current" remaining duration recorded in the network schedule should be used as the most likely duration estimate.

5) The SRA is conducted in accordance with the CDRL. It may also be conducted when necessary to incorporate significant changes in the data or assumptions.

6) The results of each assessment should be tracked to demonstrate that the overall schedule risk is decreasing over time.

**2.2.5.7.6 IMS Tailoring Guidance for Contracts Valued at Less than \$20M.** The IMS tailoring guidance for contracts valued at less than \$20M is similar to those valued at or greater than \$20M but less than \$50M. The level of complexity should be considered when determining reporting levels and the level of detail and variance analysis should be considered for adequate management insight.

**2.2.5.7.6.1 IMS Tailoring Guidance for Firm Fixed Price Contracts.** The Government may wish to monitor the progress of the FFP contract with the IMS. In these cases, the level of detail, reporting frequencies, variance reporting, and SRA tailoring should be considered. While there is no "standard" size for an IMS, the contractor should strive to build the IMS of sufficient detail to fully describe the program for the Government's evaluation and to manage their own day-to-day execution of the program after contract award. Of prime importance, and basic to all network schedules, is the identification of workflow interdependencies at the appropriate level to identify

the critical path. The contractor may wish to be more selective when developing the network by establishing workflow interdependencies at a more summary level. The statusing and reporting of progress may be less frequent than that of cost type contracts and variance reporting including thresholds may be adjusted to reflect the size and complexity of the contract. The contractor may wish to eliminate the requirement to perform a SRA or perform them on a less frequent basis.

#### **2.2.5.7.6.2 Format of IMS Delivery.**

**2.2.5.7.6.2.1 Contractor Format.** The IMS DID specifies that the IMS be created using a network capable Commercially off the Shelf (COTS) scheduling software application. As long as all reporting elements are contained in the contractor's format, this should be accepted and even encouraged by the customer as a cost saving measure.

**2.2.5.7.6.2.2 Electronic Format.** The IMS DID specifies that the IMS be delivered electronically in the native digital format (i.e., an electronic file produced by the contractor's scheduling tool) or be made available on line for downloading through electronic links. (NOTE: When the technology is available, the CDRL may be tailored, upon agreement between the prime contractor and the Government representative, to allow the ANSI X12 standard (806 transaction set), the UN/EDIFACT standard (PROTAP message) or the XML equivalent to be used to submit data electronically to the procuring activity.) The EDI requirement should not be tailored out.

**2.2.5.7.6.2.3 Paper Submissions.** A paper copy of the IMS is not recommended for network and critical path analysis. Specific data points, i.e., early start dates, baseline dates, duration or constraint dates, should be identified in the CDRL if a paper submittal is specified for official program files, in addition to EDI transmittal.

**2.2.5.8 Data Item Descriptions (DIDs).** Copies of DIDs may be obtained from the official DoD repository for Defense Standardization Program documents, the ASSIST database ([www.assistdocs.com](http://www.assistdocs.com)).

#### **2.2.6 Source Selection Evaluation.**

**2.2.6.1 Activities.** This section describes the activities that are undertaken by the source selection team to evaluate each bidder's response to the EVMS requirement in the solicitation package.

**2.2.6.2 Proposal Submissions.** Each offeror's proposal should include a description of the EVMS to be used in accordance with the appropriate DFARS clauses (See **NOTE** in paragraph 2.2.5.3) placed in the draft contract and solicitation.

**2.2.6.2.1 Compliance with Validation.** An offeror that proposes to use an EVMS previously accepted by the Government may satisfy this requirement by citing the [AA](#) or LOA and providing a copy of the approved system description. (See [Part 1, Section 2.6](#)) An offeror not having a previously accepted system should submit a plan to obtain EVM validation (refer to DFARS clause 252.242-7001 for a description of the plan).

**2.2.6.2.2 Compliance Only (No Validation).** If the offeror proposes to use a non-validated EVM system, the proposal includes a written summary of the EVMS. The description of the offeror's EVMS is to be in sufficient detail to show how it complies with the ANSI/EIA-748 and address all guidelines. DFARS clause 252.242-7001 describes the requirements for this documentation. This clause also requires a matrix that cross references provisions of the EVM system description to the ANSI/EIA-748 guidelines. An offeror may elect to keep the system description general and rely on cross-referencing to internal procedures or policy manuals for a discussion of the details. In this case, the procedures and policy documents are to be referenced in, and considered a part of, the EVMS summary description.

The offeror may elect to use and apply a validated EVM system to meet this requirement and can satisfy this requirement by citing the AA or LOA and providing a copy of the approved system description.

**2.2.6.3 Evaluation.** Evaluation of the proposed EVMS is normally undertaken as part of the proposal evaluation process. This evaluation is an assessment to determine the probability of the proposed EVMS meeting the guidelines. The source selection team should ensure that the offeror has described provisions to flow down EVM requirements to the appropriate subcontractors. Each proposal should also be reviewed for adequate WBS development and resource adequacy for EVM implementation and support of the IBR. The offeror's proposed IMS is evaluated for realism and completeness against the SOW. (Refer to local source selection policy and procedures for further guidance.)

If an offeror has proposed using a previously accepted system, the EVM system evaluation may consist of a confirmation that the referenced validation is accurate and current. The system should be currently in use and surveillance should not have identified significant, uncorrected problems.

If an offeror is proposing the use of an EVMS (without validation), the written EVM system description and matrix should be evaluated for completeness against the guidelines in ANSI/EIA-748.

The DCMA representative should be requested to provide insight regarding each offeror's EVMS capability, quality, and past performance.

**2.2.6.4 Clarification.** An on-site examination of an offeror's proposed system should not normally be required during proposal evaluation. When any aspect of the system is not clearly understood, however, the offeror may be requested to provide clarification. This may be done by written communications or an on-site visit. Any such action should be coordinated with other relevant competent authorities including the Source Selection Board and Procuring Activity. Care is exercised during the entire review process to ensure that the offeror and the Government have the same understanding of the system described in the proposal. If it is necessary to review plans and reports from other contracts executed by the offeror, concurrence of that procuring activity is to be obtained.

**2.2.6.5 Proprietary Information.** Care should be exercised to avoid improper disclosure of information obtained from the offeror's proposals, especially in competitive situations in which the degree of compliance with the guidelines is a factor in contract award.

**2.2.7 Preparation of the Contract.** The final stage of source selection shifts to selection of a qualified source and definitization of the contract, followed by the award of the contract. The source selection team should ensure that the correct DFARS clauses are included in the contract. The SOW tasks and the CDRL items from the solicitation are negotiated and also become part of the contract.

## Part 2 Section 3

### Post-award Activities – System Validation and Maintenance

**2.3.1. Overview.** (Figure 3-1) This section describes EVM system validation and maintenance following contract award for any contract requiring EVMS application. It describes the system validation process for applicable contracts, the surveillance process, the approval process for changes to the EVM system, and how to address deficiencies in the contractor's EVM system. When [EVM validation](#) is required, DoD policy is to ensure that:

- no changes to contractor's existing EVMS are required except those necessary to conform to the guidelines in ANSI/EIA-748
- the contractor has properly implemented the EVMS on the contract under review and is using it as a principal program management tool, and
- the contractor is using the data from its own EVMS in reports to the Government.

These objectives can be met through a rigorous system validation process for [applicable contracts](#), and consistent surveillance practices and a controlled approach to system changes for all contracts. Industry ownership of EVM as an integrated management tool is fostered through corporate commitment, partnering for joint surveillance, and establishing internal control systems to minimize system deficiencies. This partnering approach serves to meet the needs of DoD for reliable performance data and executable contracts, while also meeting the needs of industry for a consistent DoD approach to EVM implementation.

Instructions, sample documents, and templates for conducting EVM system reviews and surveillance are contained in the DCMA [System Capability Analysis](#) toolkit. This toolkit provides a consistent approach for use by all DoD teams.

#### 2.3.2 EVM System Validation.

**2.3.2.1 Applications.** [Section 2.3.2 applies only to those contracts that require both EVM compliance and validation](#) but where the contractor does not have a current EVMS validation. It may also apply to any contract below the threshold wherein both the Government and the contractor agree it is in their best interests to achieve a formal validation of the contractor's EVMS. Refer to paragraphs 2.[2.6.2.1](#) and [2.2.6.2.2](#) for guidance on evaluation of previously accepted systems during source selection.

#### 2.3.2.2 EVM System Validation Options.

**2.3.2.2.1 Contractor Plan.** DFARS Clause 252.242-7001, Notice of Earned Value Management System, requires that the contractor be prepared to demonstrate that the contractor's EVMS meets the guidelines. The contractor should prepare a plan to achieve validation and submit the plan as part of the proposal. The plan shall:

- describe the EVMS the offeror intends to use in performance of the contract, and how the proposed EVMS complies with the EVMS guidelines in ANSI/EIA-748
- distinguish between the offeror's existing management system and modifications proposed to meet the EVMS guidelines
- describe the management system and its application in terms of the EVMS guidelines
- describe the proposed procedure for administration of the EVMS guidelines as applied to subcontractors
- describe the process the offeror will use to determine subcontractor compliance with ANSI/EIA-748
- the offeror shall provide information and assistance as required by the Contracting Officer to support review of the plan
- the Government will review and approve the offeror's EVMS plan before contract award

- 
- the offeror's EVMS plan must provide milestones that indicate when the offeror anticipates that the EVMS will be compliant with the guidelines in ANSI/EIA-748
  - the offeror shall identify the subcontractors, or major subcontracted effort if subcontractors have not been selected, to whom the EVMS requirements will apply.
  - a schedule that provides a timetable of events leading up to Government validation of the contractor's EVMS. This schedule should include a Progress Assistance Visit (PAV). The formal Validation Review (VR) is conducted as soon as practicable

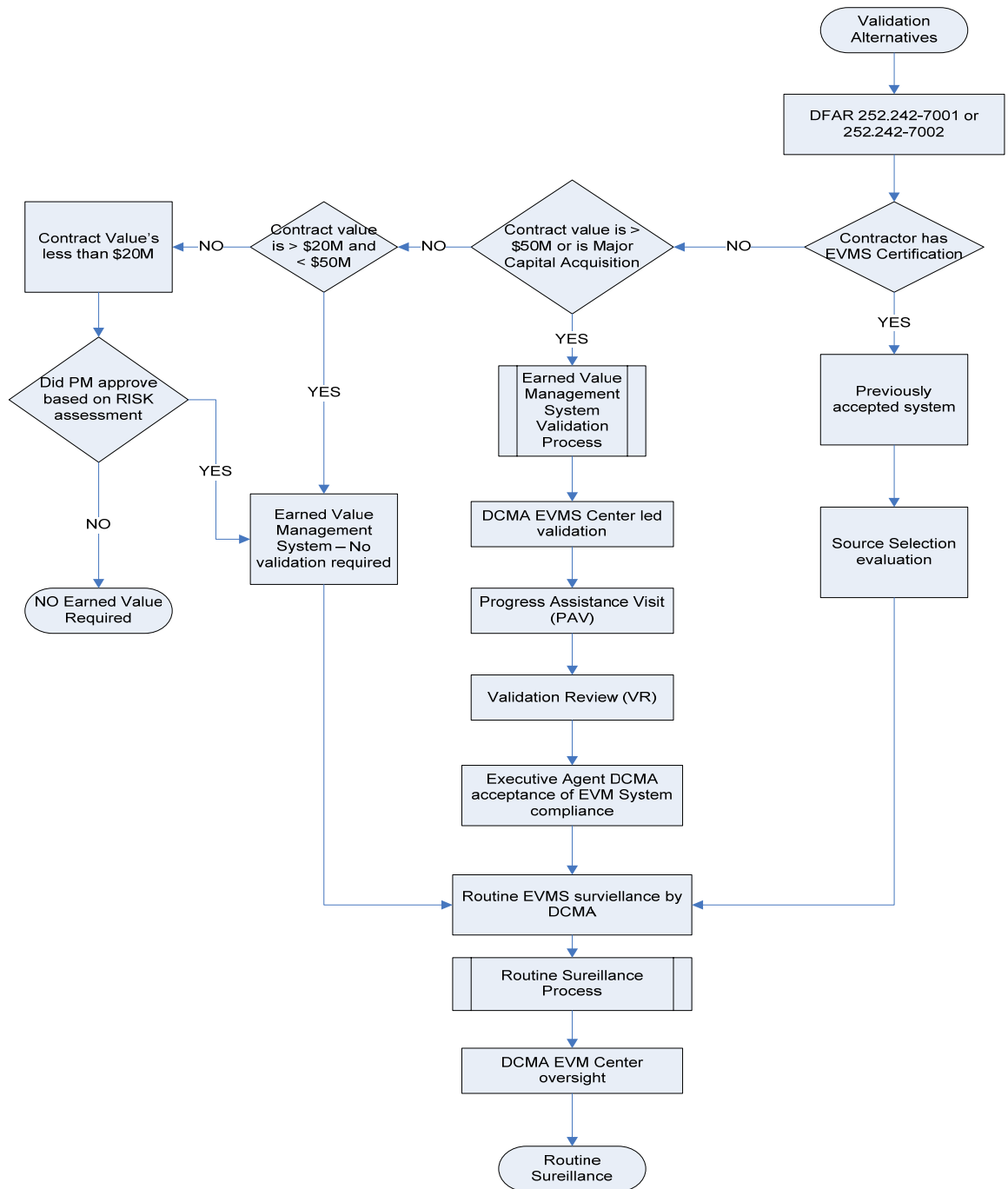


FIGURE 3-1 SYSTEM VALIDATION ALTERNATIVES

**2.3.2.2.1.1 Assuring Progress Against the Validation Plan.** The following guidance is contained in DFARS 252.242-7002(b), which should be incorporated into the contract to assure adequate progress against the validation plan. This guidance directs the contractor to show that the system complies with the EVM guidelines. The plan to become compliant becomes a part of the EVMS that has been accepted by to government. This acceptance includes not only the actions to be taken, but also the timeline to achieve those actions.

If, at the time of award, the Contractor's EVMS has not been recognized by the cognizant ACO as complying with EVMS criteria (or the Contractor does not have an existing cost/schedule control system that has been accepted by the Department of Defense), the Contractor shall apply the system to the contract and shall be prepared to demonstrate to the ACO that the EVMS complies with the EVMS criteria.

**2.3.2.2.2 Progress Assistance Visit (PAV).** The PAV is an initial assessment of the contractor's readiness to demonstrate its EVMS compliance and is usually conducted within 30 days after contract award.

**2.3.2.2.2.1 Purpose of PAV.** The PAV is held by representatives of the review team with the contractor before the VR. Without involving the time and expense of the full validation team, the PAV provides an opportunity to review progress toward implementing the guidelines, to resolve misunderstandings, and to assess the contractor's readiness to demonstrate a fully integrated EVM system. It assists in the preparation for the VR by familiarizing key team members with the fundamentals of the contractor EVMS.

**2.3.2.2.2.2 PAV Team.** The DCMA EVM Center will select a Review Director. The Review Director will select the Team Chief and a few experienced individuals from the planned validation team roster to conduct the PAV.

**2.3.2.2.2.3 PAV Process.** The review is conducted by the Government as soon as possible after contract award, preferably within 30 days representatives of the review team should visit the contractor's facility and review the contractor's plans for implementing a guideline-compliant EVMS. The visit includes an initial review of the system description. Areas of noncompliance and potential problems are identified. This visit provides an early dialogue between the review team and the contractor on the validation review process. During this preliminary visit the contractor usually makes presentations on the system's design and operation and explains applicable reports. The team should examine selected documents and procedures proposed by the contractor and a schedule should be developed to accomplish the VR in accordance with the plan submitted by the contractor. Every attempt should be made to finalize the system description during the PAV.

**2.3.2.2.2.4 PAV Results.** The Team Chief should prepare a report for the Review Director describing the results of the PAV. Any discrepancies should be identified for correction. Recommendations for system improvements should be forwarded to the Review Director for evaluation and discussion with the contractor. Where actual deficiencies have been identified, the contractor is afforded an opportunity to correct them. The report should include the Team Chief's assessment of the contractor's readiness for the VR.

### **2.3.2.3 Government Conducted Validation**

**2.3.2.3.1 Validation Review (VR).** The purpose of the VR is to conduct a formal assessment of the contractor's proposed EVMS compliance with ANSI/EIA-748. Successful demonstration of the EVMS and completion of the review results in the validation of the contractor's EVMS. The primary objectives of the VR are to:

- evaluate management system capabilities against ANSI/EIA-748
- assess the description of the management system to determine if it adequately describes the management processes demonstrated during the review, and
- evaluate the application of the management system on the contract being reviewed.

**2.3.2.3.1.1 Determination of Evaluation Focus.** If a contractor's EVMS used for development efforts differs significantly from that used during production, separate validation evaluations may be required. Simultaneous reviews of the systems used for development and those used for

production contracts may be performed or a contractor may implement one system for both types of contracts. This eliminates the necessity for multiple reviews.

Following the successful demonstration of a development focused evaluation, the Government may elect to do follow-on reviews, focused on those elements of the EVMS that are unique to production. In determining to focus a review on development or production the following issues should be considered:

- If the manufacturing effort in the contract is not true repetitive manufacturing (e.g., model shop work), and there is no major difference from the management system used for the engineering effort and in the way the work is planned and controlled and cost data are collected, then the review can be based on the application of a development system.
- If the preponderance of discrete effort in the contract is identified as either engineering or manufacturing, then the identification of the review as development or production should be self evident.
- If there is little or no manufacturing effort (e.g., contracts for long-lead items, engineering services, or production planning), the contractor can apply either an accepted development or an accepted production system regardless of funding.
- The type of funding should be considered, but it should not override other considerations.

**2.3.2.3.1.2 VR Team.** The DCMA EVM Center selects a Review Director to coordinate review activities between agencies. For Government conducted reviews, these activities would include: approval of type, scope, extent of the review, extent of contractor involvement, approval of team recommendations, and approval of the report. The Review Director approves the assignment of the Team Chief and team members. The areas of review to be emphasized are to be established by the Review Director at the outset of the review.

The Review Director and team members are formally assigned to the team. It is essential that the team include members from the PMO. A partnering approach should be sought with contributions from both contractor and Government members. Team members should be experienced and understand ANSI/EIA-748. Knowledge of both the program and the contract is desirable. Formal training, such as that provided by the member schools of the Defense Acquisition University (DAU), or other recognized educational institutions, is recommended. Skills may also be obtained by training and experience in implementing, maintaining, and operating EVMS.

The Review Director should make all necessary arrangements to ensure availability of team members for the time required for preliminary indoctrination, training, and each review for which a team member is needed. Members are administratively responsible to the Review Director during the period of the review.

**2.3.2.3.1.3 VR Process.** The VR begins as soon as practicable following the implementation of the EVMS. The review consists of system documentation reviews, data traces, and interviews with contractor personnel. The contractor's EVMS is assessed against each guideline contained in ANSI/EIA-748. The review should be organized to follow the system approach taken by the contractor, i.e., orientation by ANSI/EIA-748 grouping or a process approach. (See Part I, Section 3.)

The contractor should have a current, approved written system description available. Applicable procedures also need to be available at the contractor's operating levels as necessary to demonstrate a consistent approach. The review team examines the contractor's working papers and documents to ascertain compliance and to document its findings. The contractor should make documents used in the contractor's EVMS available to the team. The documentation needs to be current and accurate. The contractor demonstrates to the team how the EVMS is structured and used in actual operation.



The VR includes, but is not limited to, the following activities:

- An overview briefing by the contractor to familiarize the review team with the proposed EVMS. The overview should identify any changes which have occurred since the most recent PAV.
- A review, of the documentation that establishes and records changes to the baseline plan for the contract. This includes work authorizations, schedules, budgets, resource plans, and change records including management reserve and undistributed budget records. The purpose is to verify that the contractor has established and is maintaining a valid, comprehensive integrated baseline plan for the contract.
- A review, on a sample basis, of the reporting of cost and schedule performance against the baseline plan, along with appropriate analyses of problems and projection of future costs. Also, a trace is conducted to summarize the cost/schedule performance data from the lowest level of formal reporting (normally the control account level) to the external performance measurement report. The purpose of this activity is to verify the adequacy of the control aspects of the system and the accuracy of the resulting management information.
- Interviews with a selected sample of CAMs, functional and other work teams, and PMs to verify that the contractor's EVMS is fully implemented and being used in the management of the contract.
- An exit briefing covering the team's findings. During this briefing, any open system discrepancies should be discussed along with the contractor's corrective action plan, which establishes responsibility and a time-frame for corrective action.

NOTE: If, at the time of award, the contractor's EVMS has not been determined by the ACO as complying with the EVMS guidelines, the contractor applies its current system to the contract and takes timely action to implement its plan to obtain compliance. If the contractor does not follow the implementation schedule in the compliance plan, or within a reasonable time correct all system deficiencies identified during the compliance review specified in that plan, the Contracting Officer may take remedial action.

**2.3.2.3.1.4 VR Results.** At the conclusion of the VR, the Review Director is responsible for a written report within 30 working days after the completion of the review. The written report shall be amended to reflect progress against the contractor's corrective action plan to resolve material discrepancies identified during the VR. System validation is granted to the contractor through the issuance of either an Advance Agreement or a Letter of Acceptance. Contractual actions may be initiated when VR results dictate (see paragraphs 2.3.6.1, 2.3.6.2, 2.3.6.3, and 2.3.6.4).

**2.3.2.3.1.4.1 Advance Agreement (AA).** The AA between the ACO, and contractor specifies that the contractor maintain and use the accepted EVMS as an integral management process on current as well as future contracts. The AA also documents the Government's intent to minimize system reviews. The AA also documents a contractor's corporate commitment to continue to use and maintain the EVMS guidelines compliant system for current and future Government contracts through an internal surveillance program.

A template for the AA is provided at Appendix D. The CMO and contractor should also establish a Rules of Engagement (ROE) document to identify how joint surveillance findings are documented and the process for resolution of disagreements concerning EVMS validation issues.

Pending approval and coordination with the DCMA EVM Center, an AA may be executed following the successful completion of an EVMS VR and remains in effect indefinitely. Once executed, the AA should be referenced and incorporated into each contract requiring a validated EVM system. The AA is signed by the cognizant Contracting Officer and a contractor representative at the commensurate level. For example, if the validation is for an EVMS used

throughout a corporation's division, the appropriate contractor representative may be the division manager.

Government PMs should be aware of the existence of AAs with their contractors in order to take maximum advantage of the agreements contained therein in establishing Memorandum of Agreement (MOA) requirements.

The use of the AA over the LOA option should be considered whenever possible, as the AA documents and codifies the contractor's commitment to apply and use EVM on a corporate basis.

**2.3.2.3.1.4.2 Letter of Acceptance (LOA).** A LOA is an alternative method to grant system validation following a successful Validation Review. The LOA documents the validation of the EVM system for use within the contractor's facility, but does not extend to a corporate level validation. In some cases, a company may only wish to agree to a facility wide commitment to EVM. The LOA also remains in effect indefinitely. Once executed, the LOA should be referenced and incorporated into each contract at the facility requiring a validated EVM system.

**2.3.2.4 EVM System Validation by Other Governments.** The DoD has formally entered into a tri-lateral Memorandum of Understanding with the Governments of Canada and Australia. This MOU allows each country to accept the validation of contractor systems reviewed and accepted by any of the other MOU parties. In some cases, this may mean that the contractor has been validated to a different standard than ANSI/EIA-748. In this situation a validation should be considered to be equivalent to normal validation by the DoD. The Executive Agent may be consulted by the PMO if there are any issues or doubts concerning the acceptability of the contractor's validation. Validations conducted by any Government other than Canada or Australia are not recognized at this time.

**2.3.2.5 EVM System Validation of Subcontractors.** If the prime contract contains the DFARS clause to flow down EVMS to subcontracts then the subcontractor is expected to meet the same validation requirements as the prime contractor. The Government is responsible for conducting the validation.

**2.3.2.6 EVM System with Prior Government Validation.** Contractors with an accepted EVMS application on another contract of the same type (for example, development or production) at the same facility are not required to undergo a VR on a new contract. The Executive Agent may be consulted by the PMO if there are any issues or doubts concerning the status of the contractor's validation.

When a contractor has a previously accepted EVMS, additional EVMS VRs are only conducted to reinstate validation if the contractor's validation was withdrawn following a RFC. The most important element to ensure continuing compliance with ANSI/EIA-748 is less about the "one-time" review leading to the system validation but more on the continuous surveillance process.

In the interest of fostering contractor ownership, the DoD encourages contractors to responsibly conduct continuous self evaluation of their EVMS in partnership with the Government. The contractor should use ANSI/EIA-748 as the basis for assessing their system compliance. The contractor is also encouraged to use the templates and forms provided in the [System Capability Analysis](#) model when evaluating their EVM compliance.

## **2.3.3 EVM System Surveillance and Maintenance**

**2.3.3.1 Purpose of Surveillance.** Surveillance is a recurring process by the DCMA that assesses the continuing compliance of the company's EVMS with ANSI/EIA-748 and the company's written system documentation. Surveillance ensures that the contractor's EVMS:

- provides timely and reliable cost, schedule, and technical performance measurement information summarized directly from the contractor's internal management system
- complies with the guidelines

- provides timely indications of actual or potential problems
- maintains baseline integrity
- provides information that depicts actual conditions and trends
- provides comprehensive variance analysis at the appropriate levels including proposed corrective action in regard to cost, schedule, technical, and other problem areas
- discusses actions taken to mitigate risk and manage cost and schedule performance.

**2.3.3.2 Surveillance Policy.** Surveillance of management control systems is required for all contract efforts that require EVM compliance with the ANSI/EIA-748, **regardless** of whether a formal system validation is required. EVMS surveillance begins at contract award, continues through the VR and validation (when required), and extends throughout the duration of the contract. We do surveillance to ensure the contractor follows the terms and conditions that are on the contract. If revisions are made changing those terms and conditions then a modification to the contract is required in order to make them applicable to the contract. Surveillance is implemented on the contract through the inclusion of DFARS clause 252.242-7002 (See figure 2-3) in the contract.

The [CMO](#) has the primary responsibility for surveillance of the prime contractor and [specified subcontractor](#) EVMS. (See paragraph 2.3.3.5 for a discussion of surveillance of subcontractors with flow down EVMS requirements.)

### **2.3.3.3 Surveillance Responsibilities.**

**2.3.3.3.1 Guidance.** A number of organizations are involved in CMO's surveillance of the contractor's EVMS. These include the CMO, EVMS Specialist, DCAA Field Audit Office (DCAA FAO), PMO and EVMSS. The contractor may choose to participate in the Government surveillance process and is strongly encouraged to do so. This grouping of organizations is referred to as the Integrated Surveillance Team (IST). EVMS surveillance requires participation and full cooperation of both the Government and the contractor. The following organizations have specific surveillance responsibilities:

#### **2.3.3.3.2 Program Management Office (PMO).** The responsibilities of the PMO include:

- negotiating and updating the MOA with the CMO;
- keeping the CMO informed of actions and matters which could affect EVMS surveillance;
- assisting resolution of problems cited in surveillance reports by providing required support to the CMO;
- reviewing, evaluating, and analyzing CPRs and bringing issues to the attention of the CMO;
- apprising the CMO of the adequacy and usefulness of the surveillance reports, and where; necessary, stating required changes to reporting practices; and
- obtaining assistance from the DCMA EVM Center in resolving surveillance issues.

**2.3.3.3.3 Earned Value Management Support Staff (EVMSS).** The EVMSS are the procuring activity's subject matter experts responsible for providing technical support to PMOs. The EVMSS can assist the PMO with input to the MOA, guidance in analyzing CPRs, facilitating IBRs, and conducting risk assessments. The EVMSS may also participate as members of the IST.

**2.3.3.3.4 Contract Management Office (CMO).** The CMO is responsible for EVMS surveillance in accordance with DFARS 242.302 (41) and DCMA Instruction/Guidebook. Individuals within the CMO having EVMS surveillance responsibilities are:

- The **EVMS Specialist** is assigned the overall responsibility for surveillance of the contractor's EVMS. This includes evaluation of contractor proposed changes to the system. (See paragraph 2.3.4 below.) The EVMS Specialist should be cognizant of the procuring activity EVMSS, who can provide assistance in resolving surveillance issues.

- The **Program Support Team (PST)** members are assigned responsibility for accomplishing surveillance in their respective functional or organizational area.
- The **Program Integrator (PI)/Support Program Integrator (SPI)** serves as the CMO focal point on major program contracts (or designated major/critical subcontracts).
- The **Administrative Contracting Officer (ACO)** is designated as the agent of the Government responsible for assuring that the contractor complies with the contract. The ACO is a member of the PST.

The MOA is a negotiated agreement between the PMO and the CMO that identifies the key individuals, specific responsibilities, priorities, reporting requirements, and working relationships. A MOA may also be negotiated between CMOs where multiple prime contractors are involved. The MOA describes the activities necessary to achieve and maintain effective program surveillance. The MOA should be executed promptly at the beginning of the contract and reviewed on an annual basis. A sample MOA is included as [Appendix A](#).

**2.3.3.3.5 DCAA Field Audit Office (FAO).** [DOD Directive 5105.36](#) assigns the DCAA FAO to "perform all necessary contract audit for the Department of Defense and provide accounting and financial advisory service regarding contracts and subcontracts ... as appropriate." These include providing advice to the CMO and other Government levels having authority and responsibility to take action on the acceptability of incurred costs and estimates of costs to be incurred. Additional responsibilities include verifying the adequacy of the contractors' accounting, financial management, and estimating systems and procedures. DCAA FAO activities are accomplished in coordination with the cognizant CMO through a review of the contractor's total operation. DCAA FAO in partnership with the DoD Executive Agent for EVMS has the following responsibilities:

- Reviewing the contractor's accounting system for compliance with the EVMS and contract provisions including verification that there is consistency with related budgeting and work authorization systems;
- Determining the accuracy and reliability of the financial data contained in the contract cost reports prepared from the contractor's systems;
- Reporting any significant unresolved deficiencies to the EVMS Specialist;
- Coordinating the appropriate EVMS surveillance requirements into routine DCAA audit programs and procedures with the DCMA EVM Center; and
- Advising the EVMS Specialist regarding DCAA surveys of contractor systems and other audits which may bear on EVMS acceptability or surveillance.

**2.3.3.3.6 The Contractor.** The contractor is encouraged to conduct its own internal surveillance program to ensure its EVMS continues to meet the guidelines, is implemented on a consistent basis, and is used correctly on all applicable contracts. The contractor's internal surveillance program should not replace the Government surveillance process.

The CMO should coordinate Government surveillance efforts with the contractor. Joint surveillance between the IST and the contractor is encouraged and, if established, should be documented in a Joint Surveillance Plan. See [Appendix D](#) for a sample Joint Surveillance Program Charter.

**2.3.3.4 The Surveillance Process.** For the life of the contract, surveillance should be based on recurring evaluation of internal management control practices and samples of internally and externally reported data to ensure the validity of the contractor's performance data provided to the Government. The surveillance process should focus on major system activities and problem identification to ensure the greatest return for resources expended. A risk based approach, as described in the [DCMA Guidebook](#), should identify specific areas for increased focus and

surveillance. Surveillance is conducted on specific contracts and throughout the contractor's facility as appropriate.

If deficiencies are discovered in the contractor's compliance with ANSI/EIA-748, the CMO documents the problem and then notifies the contractor of the problem along with any corrective action required. The CMO follows up to ensure the deficiency is resolved in a timely manner. EVMS problems that cannot be resolved with the contractor through the EVMS Specialist are reported to the ACO for resolution.

The CMO reviews the CPR and related internal data flow on a recurring basis or as agreed to in the MOA. The EVMS Specialist provides the PM with an independent and complete assessment of the accuracy and timeliness of CPR information as agreed to in the MOA. These reports specifically highlight issues that could affect contract milestones or areas of considerable cost, schedule or technical risk.

The EVMS Specialist documents and maintains surveillance results as part of a chronological record of the contract. The CMO provides surveillance information to the PM as agreed to in the MOA.

#### **2.3.3.5 Surveillance of Subcontractors and Other Prime Contractor Locations.**

Subcontracts and other locations or divisions of the prime contractor selected for application of the guidelines may require surveillance to be performed by another CMO. Where appropriate, the CMO having cognizance of the prime contract delegates surveillance responsibility to the responsible CMO. When a subcontractor is required to comply with the guidelines, the prime contractor is responsible for surveillance of the subcontractor.

The prime CMO function normally is limited to evaluating the effectiveness of the prime contractor's management of the subcontract. However, there may be occasions when the PM or a prime contractor requests, through the ACO, that the Government perform limited or complete EVMS surveillance. Such support administration is not to be construed as a discharge of the prime contractor's contractual obligations and responsibilities in subcontract management. Such assistance should generally be provided only when:

- the prime contractor is unable to accomplish the required surveillance because it would jeopardize the subcontractor's competitive position or proprietary data is involved;
- a business relationship exists between the prime contractor and subcontractor not conducive to independence and objectivity, as in the case of a parent-subsidiary or when prime and subcontracting roles of the companies are frequently reversed; or
- the subcontractor is sole source and the subcontract costs represent a substantial portion of the prime contractor's costs.

**2.3.3.6 Surveillance of Non-Validated Systems.** Surveillance on non-validated EVM systems is conducted in the same manner as for validated systems, per the processes and responsibilities noted in the previous sections. The primary reason for performing surveillance on non-validated systems is to ensure that the contractor implements a system that is [compliant](#) with ANSI/EIA-748 and that the resulting data is valid. Surveillance of non-validated systems should not be expanded nor construed to imply Government validation. Refer to paragraph [2.3.8](#) for a discussion on handling deficiencies found during surveillance of non-validated systems.

### **2.3.4 System Changes.**

**2.3.4.1 Approval of Changes to Contractor's EVM System.** The contractor is contractually obligated to maintain the company's EVMS in compliance with ANSI/EIA-748. Continuing innovations to and improvement of the contractor's system are encouraged; however, such changes to the EVMS need to be approved by the DoD Executive Agent for Earned Value Management Systems (EVMS) as described in the following paragraphs. In some cases, a waiver to the change approval process may be granted.

**2.3.4.2 Changes to Validated EVM System.** A flowchart of the system change process for validated systems is provided at Figure 3-2.

**2.3.4.2.1 Change Process.** Changes to the contractor's approved EVMS require formal acceptance and approval prior to implementation to ensure that the proposed changes do not invalidate the EVMS that was evaluated in the contract award. These changes are forwarded by the EVMS Specialist to the DCMA EVM Center with a written assessment of the effects, if any of the changes on the approved system. (This assessment of the effect of the proposed change(s) on their contracts helps ensure that contractor system changes that result in modifications to reported information are not made without the involvement of the organizations utilizing the data for program management.)

Upon evaluation and approval of the proposed changes by the DCMA EVM Center the ACO should advise the contractor of the acceptability of such changes within 30 calendar days after receipt of the notice of proposed changes from the contractor. When a proposed change would make the contractor's EVMS non-compliant, the contractor should be promptly notified by the ACO.

**2.3.4.2.2 Waivers to Change Approval.** Per the provisions in DFARS 252.242-7002, the ACO may provide the contractor with a waiver to the change approval process. Waivers to prior approval of system changes should normally be granted when contractors demonstrate continual commitment to the use of EVM as an integral part of their business practices. Formal documentation of this commitment may, for example, be found in AAs or company internal executive directives clearly indicating the contractor's commitment to effective EVM. The ACO should also weigh the contractor's disciplined use of documented EVMS procedures as demonstrated through surveillance.

- When a waiver has been granted, contractors still need to notify the Government at least fourteen calendar days in advance of the effective date of the change(s).
- Waivers should normally be granted to apply to all contracts at a contractor's facility. This waiver should continue to apply, provided the Contracting Officer determines the contractor continues its commitment to effective EVM business practices.

**2.3.4.2.3 Exclusions to Approval Requirement.** The software used to implement the EVMS may be modified or replaced without Government approval, as long as the approved processes are not modified and continue to be adequately supported by the new software. This includes, for example, management subsystems' inputs, outputs, files, control account documents, earned value techniques, and interfaces among those subsystems. The name of the software may be mentioned in the system description, when the intent is to clarify and describe the capabilities as mentioned above, and thereby reduce the amount of additional content needed in the system description.

**2.3.4.3 Changes to Compliance Only EVM Systems.** Contracts valued at or greater than \$20M but less than \$50M are contractually required to be ANSI/EIA-748 compliant but do not require formal system validation by DCMA. DFARS clause 252.242-7001(a) requires the contractor to submit a written description of the EVM processes that are used to assure internal, continuing compliance with ANSI/EIA-748. Per DFARS clause 252.242-7002(d), the contractor is required to notify the DCMA EVMS Specialist of any substantive changes to the EVM processes however, approval of these changes is not required. The DCMA EVMS Specialist should evaluate any changes for continued compliance to ANSI/EIA-748 and notify the affected Government PM and EVMS providing an assessment of the effect of the proposed changes on the contract.

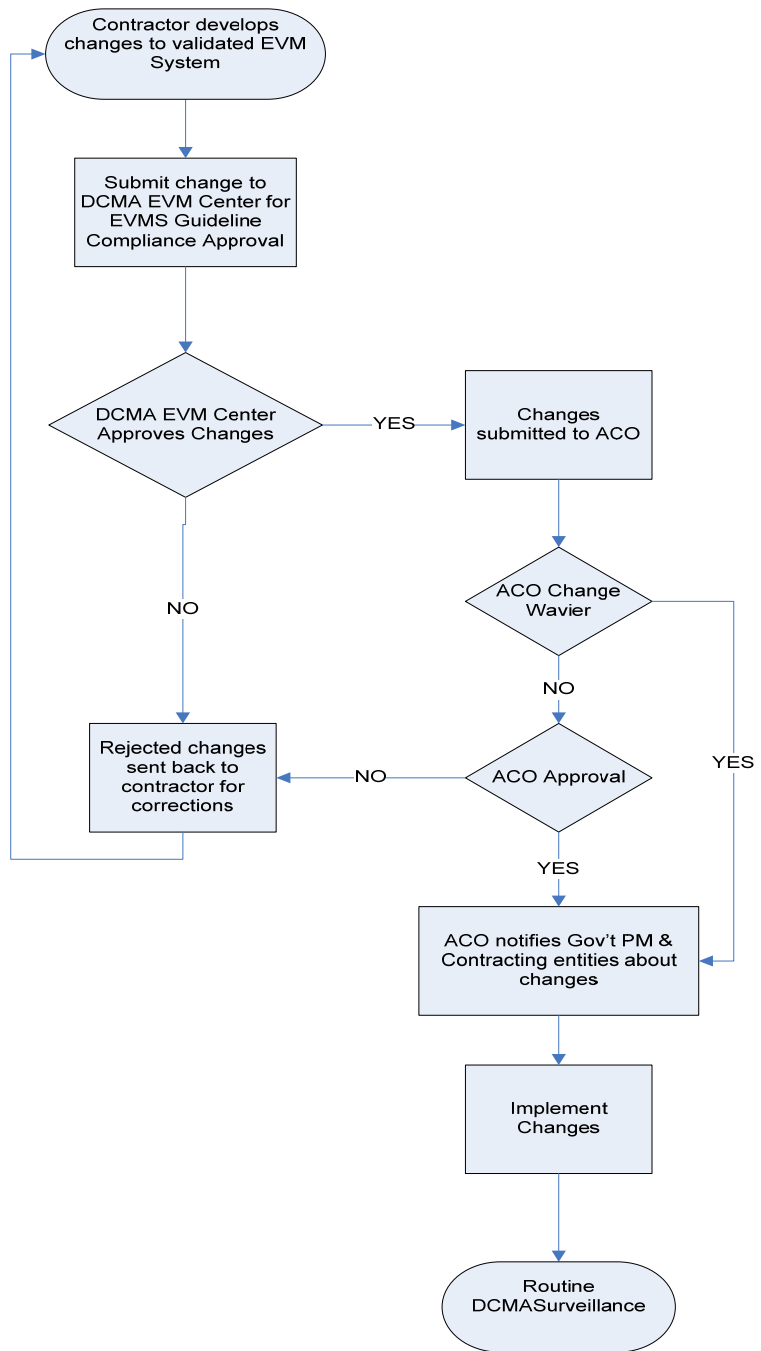


FIGURE 3-2 SYSTEM CHANGE PROCESS FOR VALIDATED SYSTEMS

Should the DCMA EVMS Specialist determine that the changes would cause non-compliance to ANSI/EIA-748 the ACO should formally notify the contractor of this non-compliance and therefore its non-fulfillment of the contract requirements. The letter should request that the contractor modify the proposed changes to maintain compliance. Should the contractor not take the appropriate corrective actions in a timely fashion, the ACO should invoke the appropriate contractual remedies to address non-compliance with the terms of the contract. (Refer to Figure 3-3.)

**2.3.5 Reviews for Cause (RFC).** The RFC process is coordinated through the DCMA EVM Center. After formal acceptance of a Contractor's EVMS, no further system review is conducted unless there is a serious need determined by the Government. The decision to conduct a review may occur when conditions warrant, e.g., solving a major system application problem identified by the PM or EVMS Specialist on a specific contract. The key element in the decision process is whether the output of the processes meets the intent of the guidelines and is useable for decision making. Input from the surveillance organization should be considered in determining the need for and the scope of the review.

**2.3.5.1 Purpose of the RFC.** The primary objectives of the RFC are to:

- evaluate the contractor's progress against the corrective action plan;
- identify remaining actions required to reaffirm system acceptability;
- ensure accuracy of performance data generated for Government contracts; and
- determine if the system validation should be suspended or withdrawn.

The scope of the review should be established by the Review Director working closely with the EVMS Specialist, the PMO, the EVMSS, and the contractor. Regardless of cause, the scope and conduct of the RFC should be limited to only the system processes that are affected. Those portions of the EVMS designated for review are to be identified at the start of the review. Any previous review findings and surveillance reports should be analyzed to identify areas of special interest.

**2.3.5.2 RFC Team.** The team composition and the duration of the review should be the minimum necessary to accomplish the task. The review is led by a Review Director assigned by the DCMA EVM Center and usually includes participation by the PMO, EVMS Specialist, EVMSS, DCAA FAO, and the cognizant CMO.

**2.3.5.3 RFC Process.** The Review Director provides the contractor with a plan for the review. The RFC is scheduled based on written Government notification. The basic review routine is similar to that of a VR. It is to be carefully noted, however, that it is not intended to be pursued to the extent that it would result in a full re-evaluation of the contractor's EVMS. However, scope may be expanded when the information dictates the need for further evaluation.

**2.3.5.4 RFC Results.** A formal report is prepared by the Review Director within 30 working days after completion of the review. A recommendation may be made to the Executive Agent to either suspend or withdraw the system validation.



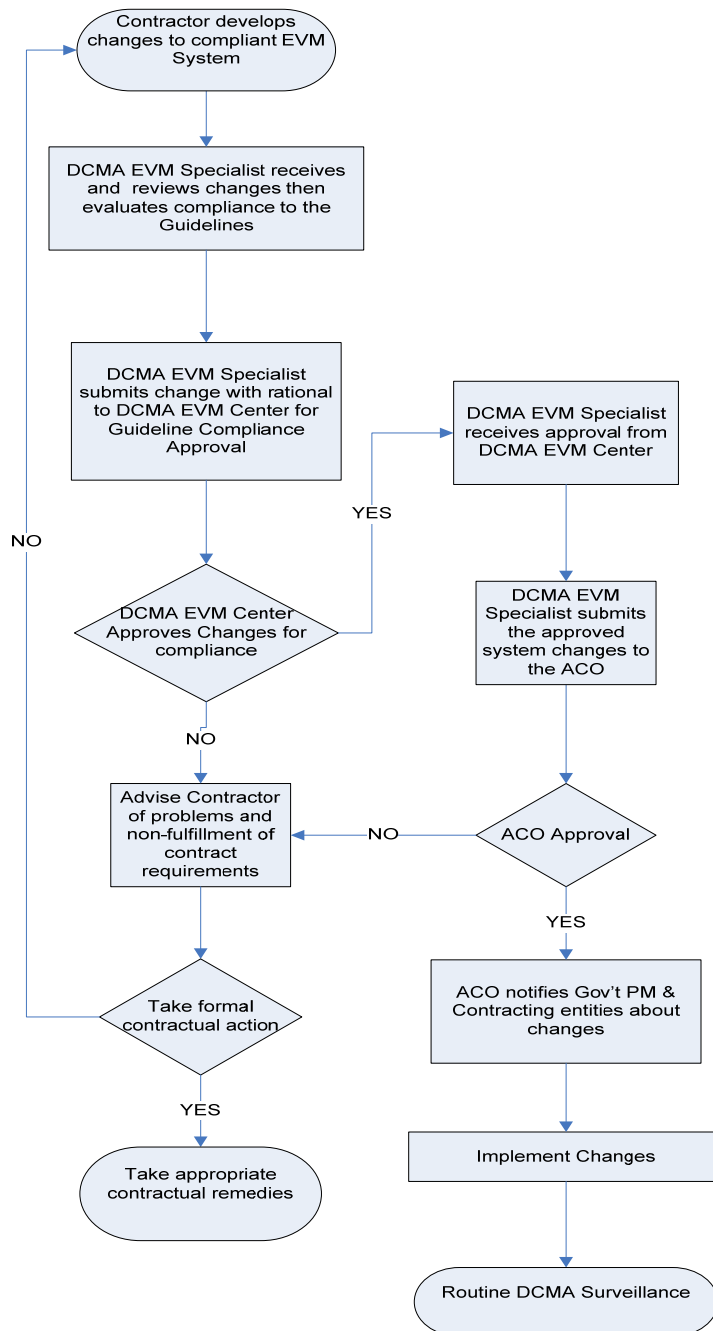


FIGURE 3-3 SYSTEM CHANGE PROCESS FOR NON-VALIDATED SYSTEMS

### **2.3.6 Deficiencies in Validated EVM Systems.**

**2.3.6.1 Deficiencies.** Deficiencies may be uncovered either in the EVM system processes or in the consistency and discipline of the validated processes. These deficiencies may be discovered during routine surveillance, during analysis of performance data or during team reviews. The information provided details the specific area(s) of deviation. The procuring activity and EVMS should be notified of major deficiencies and advice should be obtained from all parties. The following process should be followed by the Government and contractor to restore compliance and discipline. This process is designed to provide the contractor an opportunity to correct deficiencies prior to formal withdrawal of the company's EVMS validation. See Figure 3-4.

**2.3.6.2 Application.** The uniform and consistent application of actions and remedies for EVMS non-compliance is essential for promoting contractor-initiated corrective action. This requires an awareness and understanding of regulatory policies, correct identification of the problem areas, and selecting and implementing appropriate actions and remedies. The appropriate use of contractual actions and remedies is required to protect the Government's interest if non-compliance occurs. These need to be commensurate with the impact to the Government correlated to the value to the Government of the non-compliance. EVMS value to the Government may be significantly greater than its absolute cost. The loss of valid performance measurement data may limit the Government's ability to measure the contractor's progress on a contract which may increase the probability of unearned progress payments. When DFARS 252.242-7002, Earned Value Management System, is included in a contract, the contractor's performance measurement system becomes a material requirement. The information below is for application to EVMS non-compliance issues.

**2.3.6.3 Actions.** The following actions and remedies are initiated after discussion with or recommendations by the PMO (PCO) and CMO (ACO):

- Issue letter of concern notifying the contractor of a specific problem and requesting additional information or a corrective action plan with get well dates.
- Reduce or suspend progress payments (FPIF contracts) when contract requirements are not met (FAR 32.503-6 (b) (1)).
- Reduce contractor billings when EVMS deliverable reports are unacceptable and payments should be recouped (cost-type and FPIF contracts).
- Reduce overhead billing rates when overhead payments to the contractor have not been earned and should be recouped (cost-type and FPIF contracts). Prior to implementing, coordinate with the DCAA.
- Full compliance with ANSI/EIA-748 may be used as a factor in award fee determination.
- Inform the contracting officer that an EVMS non-compliance issue is endangering contract performance and recommend a Cure Notice be issued.
- Inform the contracting officer that a condition(s) endangering performance (described in contracting officer cure notice) has not been corrected and recommend issuance of a Show Cause Notice. (This is a last resort measure and a contract is rarely terminated for EVMS non-compliance).

**2.3.6.4 Remedies.** The following remedies may be initiated by the contracting officer after discussion with, or recommendations by, the PO, CMO or EVMS:

- negotiate a reduction in contract price
- issue a Cure Notice
- issue a Show Cause Notice

### **2.3.7 Suspension or Withdrawal of Validation.**

**2.3.7.1 Suspension of Validation.** The responsible PCO and/or ACO formally provides a contractual notification that the contractor's EVM system has been suspended until all corrective actions have been successfully completed and approved by the PCO and/or ACO in coordination with the DCMA EVM Center. The contractor is prohibited from claiming an ANSI/EIA-748 compliant system in all new proposals during the period of suspension.

The notification should also include a statement that the contractor's EVMS validation is in jeopardy. The contractor is given a reasonable period of time to show cause why the EVMS validation should not be withdrawn and contractual remedies be invoked.

The PCO and/or ACO in coordination with the DCMA EVM Center measures the contractor's progress against the corrective action plan and if the contractor successfully demonstrates that all corrections have been made within the given time period, the suspension is lifted. The PCO and/or ACO coordinates all proposed actions and status of the suspension with the Procuring Activity and notifies DCMA EVM Center of the status on a recurring basis.

**2.3.7.2 Withdrawal of Validation.** If the contractor fails to demonstrate correction of all system deficiencies, the PCO and/or ACO in coordination with the DCMA EVM Center formally withdraws the validation of the contractor's EVMS. This withdrawal invalidates and terminates the AA or LOA for EVMS application on all affected contracts. The contractor may not claim to have an accepted EVM system in any new proposal until re-validation of the EVM system has been achieved. To obtain re-validation, the contractor is required to demonstrate full compliance with all 32 guidelines in a VR. Upon successful demonstration of full compliance, the PCO and/or ACO formally recognizes the re-validated system and may issue a new AA or LOA.

**2.3.8 Deficiencies in Non-Validated Systems.** Since a non-validated contractor does not hold a validation that can be withdrawn, a different approach is taken if serious EVMS deficiencies are uncovered. The CMO in coordination with the DCMA EVM Center should advise the contractor that the system is not compliant with the terms of the contract and that a corrective action plan is required. The CMO in coordination with the DCMA EVM Center should monitor and independently validate the contractor's progress in correcting system deficiencies and continue to monitor consistent application through spot checks, sample data traces, and random interviews as appropriate. The CMO in coordination with the DCMA EVM Center should keep all parties (particularly the PMO) apprised of progress in implementing the corrective action plan. Should the contractor not make adequate or timely progress in the correction of deficiencies, contractual remedies may be appropriate.

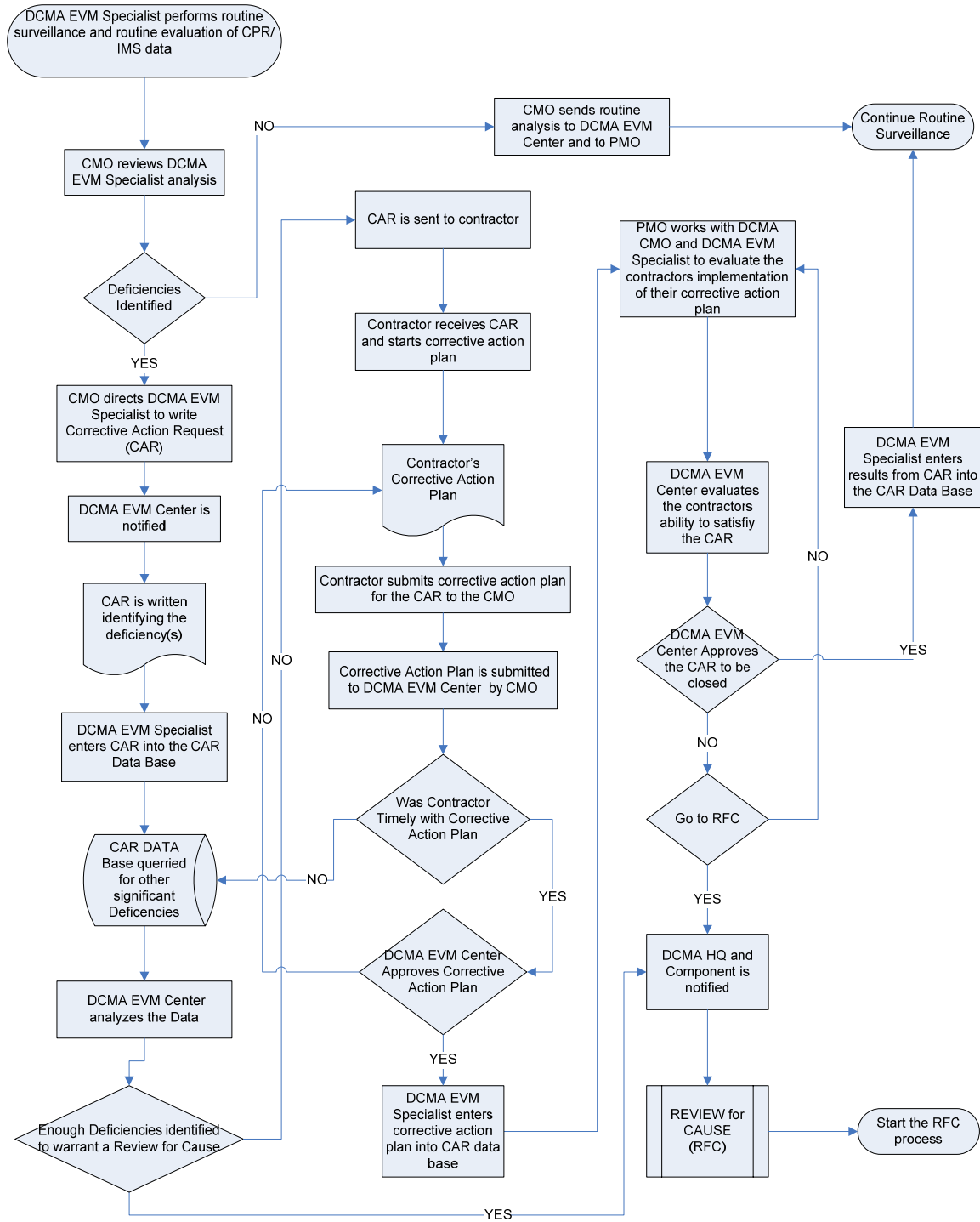


FIGURE 3-4 SYSTEM DEFICIENCIES – VALIDATED SYSTEMS



PART 2 SECTION 4  
POST-AWARD ACTIVITIES – INTEGRATED BASELINE REVIEWS

**2.4.1 Overview.** This section defines the process and provides guidance for planning and conducting IBRs.

**2.4.2 Purpose of the IBR.** The IBR concept was developed in 1993 due to a growing recognition within DoD that unrealistic baselines were being established for many contracts, leading to significant cost and schedule overruns. The IBR was seen as a way to establish more realistic baselines which would lead to improved program management and better use of the EVM process by PMs.

An IBR is a joint assessment conducted by the Government PM and the contractor to verify the realism and accuracy of the PMB. This involves verifying the technical content of the baseline and assessing the realism and accuracy of the related resources (performance budget and IMS). The IBR is unlike the VR that focuses on EVMS compliance with ANSI/EIA-748. Instead the IBR focuses on assessing the realism of the baseline.

The IBR is a tool that should be used as necessary throughout the life of the contract. Key benefits of the IBR are:

- joint understanding of program risks;
- management insight into the planning assumptions and the resource constraints of the baseline;
- comparison of expectations so that any differences can be addressed early in the planning phase;
- correction of baseline planning errors and omissions;
- in-depth understanding of developing variances and improved early warning of significant variances;
- targeting of resources to address challenges and mitigate risks;
- mutual commitment by the joint team to manage to the baseline; and
- more executable programs.

**2.4.3 IBR Policy and Guidance.** DoD acquisition policy 48 CFR Part 242 and 252 as flowed down to DoDI 5000.2 requires the PM and the technical staff to conduct an IBR on any contract requiring EVM compliance, whether or not there is a requirement for validation. The IBR does not depend on whether a contractor's EVMS has been formally validated since the IBR focus is on the content of the baseline and not on ANSI/EIA-748 compliance. An IBR is also conducted on any subcontract, intra-Government work agreement or other agreement that meets or exceeds the >\$20M threshold for EVMS implementation.

The government will require integrated baseline reviews. Such reviews shall be initiated as early as practicable, and the review process should be initiated no later than 180 calendar days after contract award/ATP, the exercise of significant contract options, the incorporation of major modifications or as otherwise agreed upon.

The IBR should not be considered a one-time event or single point review. IBRs are also performed at the discretion of the PM or when major events occur within the life of a program. These events may be a significant shift in the content and/or time-phasing of the PMB or when a major milestone such as the start of the production option of a development contract is reached. An IBR should also be conducted whenever an [Over Target Baseline](#) (OTB) or [Over Target Schedule](#) (OTS) is implemented.

Incremental IBRs may be an alternative approach for long, complex development efforts. In an incremental IBR, the baseline is reviewed for an increment of time that corresponds to the contractor's planning cycle(s). For example, the baseline may be planned in detail from contract

award to CDR, and this becomes the basis for the first incremental review. The first incremental review should also review the top level planning for the remaining effort. Conducting incremental IBRs does not abrogate the contractor's responsibility to plan the full baseline in as much detail as possible. Other incremental reviews occur over time as the remaining baseline is planned in detail. Incremental IBRs are not suitable for contracts that are only a few years in duration or for production contracts. Continuous assessment of the remaining PMB and program risks aids the PM in identifying when a new IBR should be conducted.

Additional guidance is contained in a guide prepared by a joint OSD/NDIA team, [The Program Managers' Guide to the Integrated Baseline Review Process](#). While this is not a detailed how-to guide, the guide describes the key attributes of the IBR and establishes a framework for improving consistency of the IBR across DoD.

The Government and contractor should begin discussing the coverage of the IBR as soon as possible after contract award. The IBR focuses on assessing the baseline realism at the lowest level, and other baseline related risk evaluations as necessary. The following guidance should help in establishing the focus for the IBR.

#### **2.4.4 IBR Focus.**

**2.4.4.1 Control Account Coverage.** While it may seem ideal to review 100% of all control accounts, this is usually not practical. General guidance for selection of the appropriate control accounts includes the following:

- all elements with high to moderate technical risk;
- all control accounts of high to moderate value;
- all elements on the critical path;
- all elements already identified in the program risk plan; and
- all non FFP subcontracts or material items.

Selection of these control accounts should result in at least 80% of the PMB value being selected for review. Low dollar value control accounts or LOE accounts may be candidates for exclusion.

The contractor can provide a matrix that lists all control accounts, names of responsible CAMs, approved budget amounts, and BCWP technique. This listing is normally called a dollarized responsibility assignment matrix (RAM), and represents all performance budgets on the contract. This list should be jointly reviewed for selection of the control accounts per the guidance discussed above.

**2.4.4.2 System Level Risk Assessments.** In addition to the detailed review at the control account level, the joint team should agree to system level risk assessments as appropriate for the contract. These may include, but are not limited to, the following:

- complete allocation of all work from the contract SOW to the detailed work planning documents
- impact of Government furnished equipment, data, and facilities
- completeness and realism of the total IMS, including a critical path analysis
- completeness and reasonableness of the budget allocation
- discussion of the planning assumptions and business volume used as the basis for indirect rates
- overall staffing issues
- ongoing EVM system discipline issues and risks that may impact the baseline development and maintenance, and
- assessment of the overall risks versus the amount held in MR.

**2.4.4.3 Subcontractor Assessment.** Any subcontractor with a contractual flow down requirement for EVM should also be included in the IBR. A separate IBR may be conducted at the subcontractor's facility, in which case the prime contractor should take the lead in conducting the IBR, with active Government participation. Alternatively, the subcontractor may participate as part of the prime contract IBR.

**2.4.5 IBR Team.** The IBR is a function of program management, not a financial or cost review. Therefore, OSD policy specifies that the PM plan the IBR, serve as the IBR team chief, and actively manage the IBR team. The primary team members are the IPT members of the PMO who have been given the integrated responsibility for managing a WBS element(s). The selection of control accounts for the IBR drives the selection of these primary team members. The PM should select individuals for the IBR team who are experienced with the technical disciplines and programmatic issues under review.

Areas of discipline that should be included on the team are program management, subcontract management, and technical management (e.g., systems engineering, software engineering, manufacturing, integration and test engineering, and integrated logistics support). Functional support is provided by business managers, cost analysts, schedule analysts, EVMS Specialists, and contracting officers. The CMO, and in particular, the EVMS Specialist, should be an active participant. The size and composition of the team should reflect the PMs objectives, expectations, and risk assumptions.

Once an IBR team is designated, joint training is conducted for all members of the IBR team. Basic training in EVM baseline concepts should also be provided as necessary. Specific training for the IBR should be given one to two weeks before the review. As part of the IBR training, the contractor should provide a short overview of the specific baseline documents to be reviewed, using an example of a single thread trace through a control account.

#### **2.4.6 IBR Process.**

**2.4.6.1 IBR Process Guidance.** A successful IBR depends on up front planning and commitment by the Government and contractor PMs. The following paragraphs address how to assess readiness, conduct a baseline scrub, develop an IBR plan, and conduct the IBR.

**2.4.6.2 Assessing Readiness for the IBR.** IBRs should be conducted as soon as possible. The following maturity indicators should be reviewed for technical completeness, quality and validity to help the PM prepare for a value added assessment of the performance measurement baseline (PMB):

- Work definition
  - WBS development
  - Specifications and flow down to subcontractors
  - Internal SOW or WP definitions
- Integrated schedule
  - Vertical integration between lowest level and master level
  - Horizontal integration between functions or tasks
  - Product handoffs identified
  - Subcontractor schedules integrated into prime IMS
- Resources
  - Labor and material resources fully planned and time phased for all tasks
  - Constrained resources identified and elevated or rescheduled
  - Manpower resources leveled
  - Subcontractor baselines integrated into prime baseline
- Integration of schedule and budget baselines
- Adequate earned value measures at the WP level
- Baseline validated at lowest levels and approved by management



**2.4.6.3 Baseline Scrub.** It may be beneficial for a team of EVMS Specialists (contractor/DCMA/PMO) to conduct a scrub of the baseline approximately one month prior to the IBR. This team can conduct schedule and budget traces to determine the accuracy of the planning, and also verify the integration of the schedule and budget baselines. Any baseline planning errors can then be identified and corrected prior to the actual IBR. The EVMS Specialist should document any concerns with EVM system processes that may impact the development or maintenance of the baseline. This baseline scrub serves to add to the confidence in the baseline, and allows the IBR technical team members to focus on risk evaluations, rather than baseline accuracy, during the IBR.

**2.4.6.4 Planning for the IBR.** To facilitate achieving IBR objectives, the PM should encourage the contractor to establish a PMB immediately after contract award or after an undefinitized contract award (UCA). The contractor should plan all work (tasks/activities and WPs) in detail to the extent practicable and use PPs for work beyond the near-term.

Preparation includes the development of an IBR plan by the joint team. The PMO may wish to hold an IBR workshop with the contractor to develop and agree to the elements of the IBR plan. This plan should include the following elements:

- selection of control accounts;
- summary level risk discussions;
- IBR team membership;
- training schedule;
- further preparation or document review by the team prior to the IBR;
- planned dates and agenda for the review;
- risk evaluation criteria; and
- documentation templates.

#### **2.4.6.5 Conducting the IBR.**

**2.4.6.5.1 Overview.** The IBR should be conducted in small groups, as a tabletop review of the baseline documentation. If the contractor has done an adequate job developing an integrated baseline, little additional preparation should be required to support the review. The CAMs and Government representatives should follow the flow of how the baseline was developed and review the existing baseline documentation. The IBR should never be held as a formal briefing, nor should additional briefing material be required other than a short introduction to the IBR process.

**2.4.6.5.2 Control Account Discussions.** Successfully meeting the objectives of an IBR involves discussions at the control account or work package level. These baseline discussions focus on key risk areas and evaluating the realism of the baseline planning at the lowest level. To be effective, the discussion group remains small and focused, and be composed of knowledgeable participants who have participated in the preparation and training. These discussions should address the adequacy, realism, and risks of the baseline relative to the following areas:

- the technical scope of work is fully included and consistent with authorizing documents;
- key schedule milestones are identified, task durations are realistic, schedule network logic is adequate, and schedules reflect a logical flow to accomplish the technical work scope;
- resources (budgets, facilities, personnel, skills, etc.) are adequate and available for the assigned tasks;
- [BCWP](#) is measured as objectively as possible relative to technical progress, and LOE measurement is minimized;
- all rationale underlying the PMB is reasonable; and
- managers have appropriately implemented required management processes.

To help facilitate and start the discussion, a baseline discussion starter template is shown in Figure 4-1. This template may be tailored to reflect the contractor's terminology and provides a framework to guide the discussion and review of the control account.

**2.4.6.5.3 Documenting Risks during the IBR.** Risk identification and assessment are a critical focus and result of the IBR. Once identified, risks generally may be categorized into one of five areas: technical, schedule, cost, resource, and management processes. Each risk area should be evaluated and documented using the evaluation criteria established in IBR preparation. The team's assessment of the BCWP measurement technique should be documented and evaluated. Additionally, the IBR team should assess the MR with respect to program risk that is unaccounted for in the PMB. To complete the IBR in a reasonable time frame, anything that does not support the intent of the IBR should be moved outside the review. Any system deficiencies shall be recorded on a Corrective Action Request (CAR) and forwarded to the DCMA EVM Center via the EVMS Specialist.

**2.4.7 IBR Results.** At the end of the IBR, the PMs should agree on a plan to track and close all action items, ensuring that an individual has been assigned the responsibility to resolve each action item. All risk evaluations should be summarized, analyzed, and briefed to senior management within the company and to the PMO senior management. Any newly identified risk that is significant enough for risk management and mitigation should be added to the formal risk management plan.

No formal IBR report is required for external distribution however the PM should write a memo for the record and attach all documentation for the official program files. There is no "pass or fail" to an IBR however, the measure of a successful IBR is when both PMs can answer this question with confidence and know where and which risks lay ahead:

**Can we execute this contract (technical work scope), given the available schedule and budget resources?**

After the close of the IBR, emphasis shifts to ongoing management processes, including effective EVM and risk management processes. Completion of the IBR allows the PMO and contractor to have a better understanding of ongoing performance relative to the baseline. The IBR also enables a continuous, mutual understanding of program risks. As a result, the PMs can more effectively manage and mitigate risk, and control the cost and schedule performance of the contract.

## BASELINE DISCUSSION STARTER

		Minutes
--	--	---------

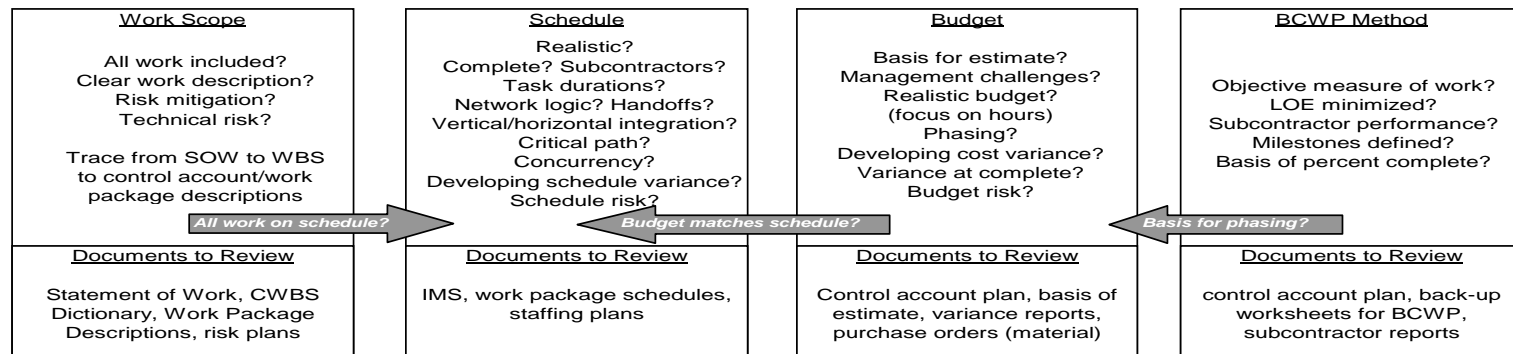
Step 1	Introductions (CAMs should briefly discuss organization)	5
--------	--	---

Step 2	Overview of Control Account(s) - General description, work content	5
--------	---	---

Step 3	Describe Control Account or Work Packages, briefly describe performance to date	5
--------	---	---

[illegible]

Step 4	Evaluate Baseline for each Work Package	95
--------	---	----



Step 5	Document. Complete CA Risk Evaluation sheet, reach concurrence on risk and action items.	10
--------	--	----

## **PART 2 SECTION 5 OTHER POST AWARD ACTIVITIES**

**2.5.1 Overview.** This section contains guidance for the PMO and CMO in performing the additional activities for effective EVM after contract award and the IBR. These tasks include maintaining a healthy baseline, approval of the OTB and/or OTS, assessing EVM for award fee contracts, analysis of performance data, and training.

### **2.5.2 Maintaining the Performance Measurement Baseline (PMB).**

**2.5.2.1 Attributes.** This section describes the attributes of a healthy performance baseline, incorporation of baseline changes, and the OTB/OTS process.

**2.5.2.2 What is a Performance Baseline?** A baseline is a key factor in ensuring the success of the program. A baseline has the following characteristics: it accurately represents only authorized work on the contract, it includes a realistic network schedule baseline, and it includes a realistic time phased spread of budget/resources to the baselined schedule. Additionally, management makes a consistent commitment to enforce proper baseline change procedures and periodically review the remaining baseline to ensure that it remains executable.

**2.5.2.3 Incorporation of Authorized Changes.** The contractor's management system should include procedures for the disciplined incorporation of authorized contract changes and internal replanning. These procedures should ensure that budget is not transferred independent of work scope, that budget and schedule changes are incorporated simultaneously, and that retroactive changes are strictly controlled. While these processes should result in disciplined management of the baseline, they should not be so strict as to preclude any adjustment to the PMB. Changes occur throughout the life of any contract, and the baseline should be adjusted to incorporate authorized changes or replanning as necessary.

### **2.5.2.4 Internal Contractor Replanning.**

**2.5.2.4.1 Guidance.** To facilitate accurate performance measurement, the contractor should maintain a PMB that reflects the actual plan for performing the remaining work. Internal replanning may include rolling wave planning or replanning of the remaining baseline.

**2.5.2.4.2 Rolling Wave Planning.** The contractor may also elect to plan the PMB in detail WPs for near term activities and hold the future budget in higher level PPs. The contractor should periodically plan the next increment of work into detailed WPs. This is known as rolling wave planning and typically provides more flexibility than laying out the complete baseline in detail at the beginning of the contract. The contractor should establish procedures and a timetable for rolling wave planning. Government approval of or interference with the process of rolling wave planning is not appropriate; however, the CMO and PMO should be aware of the contractor's schedule for rolling wave planning.

**2.5.2.4.3 Replanning of the Remaining Baseline.** Maintaining a realistic PMB may occasionally require the replanning of some, or all, of the remaining baseline. Examples of when internal replanning may be appropriate include:

- when the original plan becomes unrealistic due to cost, schedule or technical problems
- when a reorganization of work or people to increase efficiency becomes necessary
- when the decision is made to use a different engineering or manufacturing approach
- when existing budgets for remaining work are deemed sufficient, but need to be re-phased to a different work plan or schedule.

The contractor's EVMS specifies the management procedures it uses to conduct and approve internal replanning. The contractor's system may require customer (Government) approval for certain replanning activities. In these cases, the Government should promptly review and approve the changes as appropriate. If the CMO has been given responsibility to authorize these changes, the CMO should keep the PMO informed of the approved changes. (See [paragraph 3.4](#) and supporting paragraphs.) The CMO should include a review of the contractor's change procedures and replanning activities in routine surveillance.

#### 2.5.2.5 Over Target Baselines (OTB) and Over Target Schedules (OTS)

**2.5.2.5.1 Overview.** During contract execution, the contractor may conclude that the budget and schedule, for performing the remaining work, is decidedly insufficient and no longer represents a realistic plan. At this point the contractor should prepare and submit a request to implement an OTB and/or OTS.

An OTB is a PMB that has been formally reprogrammed to include additional performance management budget in excess of the contract's negotiated cost. An OTB increases the performance budget without modifying the work scope or other constraints of the contract. The value of the OTB therefore exceeds the Contract Budget Base (CBB), and the corresponding value of the contract target cost or estimated cost target (depending on contract type). The sum of all resulting budgets (allocated budget, UB and MR) exceeding the CBB becomes known as the Total Allocated Budget (TAB). The difference between the TAB and the CBB is the amount of the increase over the previously established budget. See Figure 5-1.

Before overrun			
Total Allocated Budget (TAB)			
Contract Budget Base (CBB)			
Performance Measurement Baseline (PMB)	Management Reserve		
After overrun			
Total Allocated Budget (TAB)			
Contract Budget Base (CBB)			Over Target Budget
Performance Measurement Baseline (PMB)			Management Reserve

FIGURE 5-1 Over Target Baseline

An OTS condition is created when the contractor replans the schedule to a schedule that exceeds the contract milestones or delivery dates. This new schedule also becomes the basis for the performance budgets. While it is possible to have an OTS without a corresponding increase in cost, normally an OTS is accompanied by increased costs and therefore by an OTB.

Implementing an OTB or OTS is a major management decision for the contractor and requires Government approval at the start of the process. Consequently, the PM should fully understand the concepts and processes. The PM should consider the factors discussed below when considering whether an OTB or OTS is appropriate for the contract and when evaluating the contractor's request.

**2.5.2.5.2 Government Review and Approval.** Once it receives written approval for an OTB, the contractor can create a budget baseline in excess of the CBB. If approval is received for an OTS, the contractor can replan remaining work to a realistic schedule that extends beyond the contract milestones. This allows the contractor to provide its managers with realistic budgets and schedules for accomplishing the remaining work.

The contractor initiates the process by submitting an OTB/OTS request to the PM detailing its implementation plan. (Refer to paragraph 2.5.2.4.3 for essential elements of an OTB/OTS request.) To expedite the return to a realistic baseline, the PM promptly reviews and negotiates changes, if necessary, to the contractor's request, within 30 days. The contract's CPR Data Item Description (DID) requires Government approval and specifies automatic approval if the Government fails to respond within 30 days. If the request is not approved within 30 days, the PM should provide specific reasons as to why it was denied and what is required to obtain approval. If the request is approved, the contracting officer promptly sends written approval to the contractor to proceed. The contractor may not implement an OTB/OTS without this written approval.

Because OTB budgets represent performance budgets only and are implemented solely for planning, controlling, and measuring performance on already authorized work, a contract modification is not needed. The OTB budget does not impact the negotiated value of the contract. For incentive type contracts with a ceiling, the Government's cost liability is still capped at the ceiling value. For cost reimbursement contracts, however, the Government cost liability continues to increase as actual costs accrue on the contract.

Since an OTS involves replanning the schedule milestones that exceed the contractual milestones or delivery dates, the PCO should formally recognize the new schedule milestones in the contract and seek consideration for the changes.

The PM should seek support from the PMO technical and support staff in evaluating an OTB request, ensuring that the OTB approval process is not inhibited by inappropriate or unrelated issues. The overriding goal should be to allow the contractor to implement in a timely manner a baseline that allows it to regain proper management control of the ongoing effort.

**2.5.2.5.3 When to Use an OTB/OTS.** The contractor should submit an OTB/OTS request when it determines that the current baseline does not represent a realistic plan for accomplishing the remaining work and no longer serves as a basis for realistic measurement. Working to an unrealistic baseline inhibits effective management control, possibly exacerbating the present over-cost or behind-schedule condition. To restore effective management control, the contractor should prepare an OTB/OTS request that reflects the needed changes to its baseline.

The primary reason for implementing an OTB/OTS should be to improve the contractor's ability to manage and control ongoing work. Therefore, the decision to request an OTB/OTS should originate with the contractor. The PM should not unilaterally determine the specifics, such as the amount of additional budget or degree of schedule stretch. After first concluding that the contractor needs an OTB/OTS to affect proper control over the remaining work, the PM should consider the following factors in deciding whether an OTB is appropriate on the contract:

- Do the contractor and Government understand why the current work plan is no longer valid? The parties should identify the problems that rendered the current work plan unrealistic and implement measures to prevent these problems in the future.
- Is the existing plan for accomplishing the remaining work valid? The "to-go" plan should reflect a realistic schedule of how the remaining work actually is to be done and the new budget should be adequate and reflect a realistic estimate, remaining program risks, and contain an appropriate amount of management reserve.
- Has contract work progressed sufficiently to warrant an OTB/OTS? The use of an OTB/OTS may be inappropriate in a contract's early stages because insufficient work

- has been accomplished to verify the need for an OTB/OTS. However, nothing precludes the contractor from implementing an OTB/OTS at the outset, provided the PM and PCO concur.
- Does sufficient time remain on the contract to warrant an OTB/OTS? If there is little time remaining, an OTB/OTS may not be worthwhile and may be very disruptive.
  - Has an OTB been implemented previously? If multiple OTBs are requested, it suggests that the above factors, especially the first two on the list, have not been adequately considered. This may indicate significant underlying management problems that should be investigated.

**2.5.2.5.4 Implementing an OTB/OTS.** The PM and the contractor agree to the OTB/OTS before it can be finalized and incorporated into the contractor's baseline. The PM is encouraged to seek support from the EVMS Specialist, the EVMS office, and the CMO when evaluating an OTB/OTS request. The contractor's OTB/OTS request should contain the following essential elements:

- **Bottoms-up estimate of remaining costs and schedule.** The contractor should perform a detailed bottom-up estimate of remaining work during the OTB process based on a realistic schedule.
- **Realistic schedule for remaining work.** The remaining work plan should be based on a realistic schedule. The new work plan shall be time phased into the current schedule to produce a new valid executable schedule that validates the OTB/OTS.
- **Reporting the OTB in the CPR.** The parties should agree on how the OTB is to be reported in the CPR. Specifically, how are the existing cost and schedule variances handled, and how is visibility into the budget allocations reported? The variances can be retained or eliminated, or some combination thereof, depending on the specific circumstances of the contract. Narrative justification for the OTB is described in this report. Detailed instructions on how to report an OTB in the CPR is discussed in the [Over Target Baseline /Over Target Schedule Handbook](#). The PM should evaluate carefully management information needs before deciding how these items should be handled.
- **OTB implementation time frame.** One to two full accounting periods after written authorization to proceed is received should provide the contractor with sufficient time to fully implement an OTB/OTS in required reports.

### **2.5.3 EVMS and Award Fee Contracts.**

**2.5.3.1 General Concepts.** The general concept of award fee contracting is to recognize and reward the contractor for performance that exceeds the performance targets established in the contract, including technical, schedule, and cost. Typical award fee evaluations occur at six month intervals. The PMO establishes award fee criteria prior to the start of each award fee period. It is typical that the majority of the contractor's fee may be tied to award fee, with only a small percentage earned as a base fee. If significant replanning or formal reprogramming occurs during the award fee period of performance, equitable adjustments to the award fee plan should occur, as appropriate.

Award fee criteria should be carefully selected to properly motivate the contractor's management and performance during the award fee period. Qualitative criteria are generally recommended, but clear distinctions should be established between the performance levels to guide the PMO when evaluating performance. The PMO should establish the criteria to motivate and encourage improved management processes during the period, keeping in mind that recognizing improvements in integrated program management result in more long lasting improvement in cost

and schedule performance. If such qualitative criteria are difficult to support during the evaluation process, the PMO should consider using subjective criteria for EVMS performance results.

**2.5.3.2 Avoidance of EVMS Quantitative Metrics.** While it seems obvious that earned value metrics, such as variances or indices, seem tailor made to provide incentives to the contractor in an award fee environment, experience shows otherwise. Using metrics such as cost or schedule variances, cost or schedule performance indices or VACs to measure performance for award fee purposes should be avoided. Use of such metrics may result in overstating of performance or other improper actions that could undermine the EVMS. Metrics may lead to frequent baseline changes for short term profit gain and generally have not resulted in better cost control. Cost performance may be more directly incentivized through the use of a CPIF contract rather than an award fee contract.

**2.5.3.3 Avoidance of Contract Management Milestones (such as IBR) as Criteria.** The IBR or other management, technical or program milestones should not be used as a basis for award fee. Establishing award fee metrics based on hard dates for either the IBR or other management milestones may force the conduct of these reviews, even though the contractor is not ready for the review. The technical completion of work to an established baseline evaluation criteria is one way of objectively evaluating and rewarding the contractor based on success to a baseline plan.

**2.5.3.4 Establishing Qualitative Criteria.** The goal should be to motivate effective performance management with EVMS. Award fee criteria should be based on the degree of effective management with EVMS and can be a mix of qualitative and subjective measures. The PMO should aim for 75% of the criteria to focus on effective management with EVM and a 25% focus on discipline/consistency. The goal should be to reward proactive and innovative performance management. This breakout can be seen in the following suggested categories:

**Management**

- EVM is effectively integrated and used for program management
- Prime contractor's management of major subcontractors
- Realistic and current budgets, expenditures, and schedule forecasts
- Adequacy of cost proposals submitted during award fee period
- Cost control
- Meaningful variance analysis
- Timely incorporation of changes to the PMB

**Discipline**

- Accuracy, timeliness, and consistency of billings and cumulative performance data and integration of subcontractor data
- Baseline discipline and system compliance

Sample criteria and varying levels of performance are shown in [Appendix E](#). These criteria should be selected and tailored as appropriate to the nature of the contract.

**2.5.4 Performance Data.**

**2.5.4.1 Analysis of Performance Data.** EVM provides detailed insight into program performance at all levels. Proper management use of EVM data by the program team can be the deciding factor in whether a program is delivered on time and on cost, or whether the program fails. Proper management use depends on effective and tailored analysis that is responsive to management needs. Key attributes of effective analysis are:

- management support that is consistent and visible to the entire team. This reinforces the importance of EVM to the program team.
- multi-functional team approach to analysis
- integration of analysis of key programmatic data from a variety of sources



- timeliness of analysis
- focus on significant variances and developing trends
- focus on understanding the past in order to program final cost and schedule estimates
- management emphasis on developing credible corrective action plans

It is not enough for the EVMS Specialist to generate the analysis in isolation and “toss it over the fence” to the PM. Analysis is a team effort and is fully integrated into the overall program management process. Effective analysis considers all impacts, considers all courses of action, synthesizes an integrated solution and action plan, and allows informed decisions. The real test for effective, forward looking analysis is that it is used to manage program performance, not just to report the status and problems to date.

**2.5.4.2 General Concepts of Analysis.** While analysis tools have considerably aided and shortened certain routine analytical tasks, the best analytical tool is still an inquisitive mind. The analyst should be able to answer not only the basic questions (who, what, where, when, and why), but should also be able to provide a thoughtful synthesis and set of conclusions, based on varying sources of data and recommendations. The following paragraphs describe the principal steps of analysis, different categories of metrics, determination of significant variances, and how to analyze the data for validity.

**2.5.4.3 Principal Steps of Analysis.** Figure 5-2 shows the major steps generally performed in earned value analysis. These steps should be followed in sequential order, as the knowledge gained in each step builds on previous steps. One should not attempt to perform one of the final steps, for example, development of the independent estimate at completion without a thorough understanding of past performance trends, remaining risk, etc. It should also be noted that analysis is comprised of two major steps, i.e., analyzing past performance and then projecting future performance.

Principle steps of Analysis:

Analyze Performance

- Validity of data
- Calculate variances at all levels
- Graph and analyze data
- Look at comparative data
- Analysis of schedule trends, IMS, and critical path
- Examine written analysis by contractor

Project Future Performance

- Look at work remaining versus risk in project
- Integrate analysis from IPTs
- Assess realism of contractor EAC
- Calculate range of independent EACs, compare to funding
- Calculate independent completion date, compare to IMS data

Formulate plan of action

Provide team analysis to project management team

**2.5.4.4 Further Guidance.** The DAU Gold Card, which contains basic EVM terms and formulas, can be found at <https://acc.dau.mil/evm>.

**2.5.4.5 Understanding the Contractor’s EVM System.** One of the most important tasks for the EVM analyst to undertake is to gain an in-depth understanding of the contractor’s EVMS. The program analyst should study the contractor’s EVM system description and then request as necessary, a briefing on the operation and use of the EVM system. The briefing should include,

as a minimum, the contractor's (and subcontractors', as necessary) method for establishing and maintaining their PMB, baseline documentation, allowable methods for earning the BCWP, procedures for updating the EAC, baseline change incorporation, and overhead rate structure. This basic understanding allows the analyst to fully understand the nature of the performance data as the contract progresses, and allows determination of any data anomalies.

Because the CPR is the primary report for communicating integrated contract cost and schedule performance, the PM should ensure that it presents accurate and useful information. The PM should carefully review each CPR submittal, checking for such things as errors, DID compliance, and data anomalies. The PM should address any concerns or problems and require their prompt correction by the contractor. If left uncorrected, data errors and anomalies may skew and distort the EVM analysis, Government EAC, and resulting program planning.

## **2.5.5 Training.**

**2.5.5.1 Sources of Training.** In order to effectively utilize the information generated by the contractor's EVMS and reported in the external reports, the PO, CMO, DCAA FAO, EVMSS, and contractor personnel should receive training in the analysis of earned value data. There are four general sources of training: formal training classes (DAU, professional conferences), contractor sponsored training, in house training, and training materials available on performance management websites.

**2.5.5.2 Formal Training.** Courses on the basics of earned value and the analysis of data should be provided for all personnel associated with the program and refresher training should be offered on a periodic basis. This training is available from the member organizations of the DAU as well as other recognized educational institutions and formal training programs at professional association conferences.

**5.5.3 Contractor Sponsored Training.** The majority of contractors with approved EVMS conduct training classes in the operation of their EVM system. Where the contractor provides training in the contractor's EVM system, the Government PO, the CMO, EVMSS, and DCAA may seek to participate in these training opportunities.

**2.5.5.4 In-house training.** Each acquisition component with an EVMSS normally provides in-house training. Where this capability exists, all organizations involved in an acquisition should be invited to participate in this training. This training may consist of specialized training, focused on an individual contract or, it may be generalized training addressing the concepts and requirements of EVM and the analysis of EVM information. When in-house training is conducted for an individual PO, every effort should be made to incorporate the specifics of the contractor's EVMS into the course.

**2.5.5.5 Training Materials Available on Websites.** There is a wealth of training materials posted to several performance management websites that may be used to understand basic principles and for refresher training. The limitations of this training include the possibility of receiving outdated material and not being able to get questions answered from an experienced instructor.

## APPENDIX A

### SAMPLE MEMORANDUM OF AGREEMENT

#### **BETWEEN CMO AND THE COMPONENT PROGRAM MANAGER WITH RESPECT TO SURVEILLANCE OF INTEGRATED MANAGEMENT SYSTEMS**

(IMPORTANT NOTE: This Memorandum of Agreement (MOA) is for guidance purposes only. It is intended to provide assistance in ascertaining that all of the appropriate aspects of Earned Value Management System (EVMS) surveillance are encompassed in the preparation of a specific surveillance plan. It is not intended that this MOA provide a mandatory, required format in any respect.)

1. Purpose.

The purpose of this MOA is to establish the responsibilities of the (component PM) and the (Contract Management Office) with respect to EVM surveillance under all contracts issued by the (component PM). The agreement is based upon the policy and objectives of Part 2 Section 3 of the EVMS Implementation Guide and the DCMA Instruction/DCMA Guidebook.

2. Scope.

This agreement describes the responsibilities and working relationships between the CMO and the PM, and the activities necessary to assure continuing effective contractor control, use, and reporting of cost, schedule, and technical performance within the purview of the EVMS requirements. This agreement is applicable to all (component PM) contracts performed at (Company), located in \_\_\_\_\_, which incorporate EVMS requirements.

3. Responsibilities.

a. Program Manager:

- (1) Provide overall management of the acquisition program, including support of the surveillance team to assure continued contractor compliance with the EVMS.
- (2) Provide routine feedback to the CMO on quality and utility of system surveillance efforts.
- (3) Ensure that the CMO is kept fully informed of pertinent program events, to include appropriate communications between the PM and the contractor. Program awareness is necessary so that the CMO may be fully effective and responsive in providing the required support at all times.
- (4) Request any problem analysis required beyond the scope of this MOA. Such requests are addressed to the CMO.
- (5) Provide required specialized technical support needed for effective accomplishment of the EVMS surveillance program as requested.

b. CMO:

- (1) Provide overall assurance that the contractor's integrated management system continues to meet the requirements of the EVMS guidelines.



(2) Develop and implement a joint surveillance plan which provides the details for accomplishing system surveillance and maintenance consistent with this MOA.

(3) Ensure the surveillance plan is a living document and continues to provide a framework for effective EVMS surveillance.

(4) Provide specialized support or problem analysis as agreed to in this MOA.

(5) Keep the PM advised of the status of contractor's integrated management system and EVMS related activities.

(6) Maintain records and submit reports as required by this MOA.

(7) Review and evaluate within 30 days of submittal, all proposed contractor integrated management system changes to determine EVMS compliance. If an ACO waiver to pre-approval of changes is granted, review changes and establish surveillance to ensure system integrity is maintained.

(8) Provide team member support, as available, for Integrated Baseline Reviews when requested by the procuring activity.

(9) Perform periodic evaluations of contract estimates at completion. Generate, when appropriate, independent EACs for submission to the program office and higher headquarters.

(10) Develop "Rules of Engagement" to effectively resolve EVM issues with the contractor and program office.

4. Surveillance Plan Framework. Details to be mutually determined by the PM and CMO in coordination with DCAA may include all or part of the following:

a. Assure continuity, consistency, quality, and usefulness of the system in operation. This includes the following:

(1) Assuring contractor commitment to EVM as a business practice, including effective surveillance.

(2) Assuring that the contractor's accepted integrated management system is, in fact, being used by the contractor to manage the program. (e.g. - Attendance at routine contractor management program status meetings.)

(3) Evaluating contractor generated changes to the system to ensure continued compliance with the guidelines.

(4) Assuring that system discipline and integrity are maintained.

b. Monitor the contractor's corrective actions resulting from surveillance findings and concerns.

c. Perform continuous analysis of the contractor's EVMS to ensure system integrity. Frequency and level of detail is to be consistent with contract risk. (e.g. - Compare CPI vs. TCPI for WBS element EACs, compare schedule variance vs. time based schedules for schedule accuracy)



## APPENDIX B

### Sample Statement of Work Paragraphs

#### X.0 Integrated Program Management (IPM)

X.1 Contract Work Breakdown Structure (CWBS). The contractor develops and maintains the CWBS and CWBS dictionary in accordance with DI-MGMT-81334B, using the WBS structure contained in the Cost and Software Data Reporting (CSDR) plan. The CWBS provides the basis for further extension by the contractor to lower levels during the performance of the contract. The contractor extends the CWBS down to the appropriate level required to provide adequate internal management, surveillance, and performance measurement, regardless of the reporting level stipulated in the contract for Government visibility. The contractor uses the CWBS as the primary framework for contract planning, budgeting, and reporting of the cost, schedule, and technical performance status to the Government. The contractor analyzes the system requirements specified in the statement of work (SOW) and system specification and translates them into a structure representing the products and services that comprise the entire work effort commensurate with the acquisition phase and contract requirements. The contractor's team or organizational entity responsible for the systems engineering of the system prepares the technical elements of the extended Contract WBS. The contractor, if necessary, updates the CWBS during the execution of the contract. Changes to the CWBS or associated definitions, at any reporting level, require approval of the Government (DI-MGMT-81334A).

#### Applicable Documents

MIL-HDBK-881

DI-MGMT-81334B

#### Title and Tailored Application

Work Breakdown Structure for Defense Materiel Items

Contract Work Breakdown Structure

X.2 Performance Management System. The contractor utilizes its existing, internal performance management system to plan, schedule, budget, monitor, manage, and report cost, schedule, and technical status applicable to the contract. The contractor's internal performance management system serves as the single, formal, integrated system that meets both the contractor's internal management requirements and the requirements of the Government for timely, reliable, and auditable performance information. The application of these concepts provides for early indication of contract cost, schedule, and technical challenges. Earned value assessments correlate with technical achievement. The outputs of this system are used as the basis to report detailed performance status during program management reviews and other status meetings. The contractor's system should satisfy the Industry Guidelines delineated in the ANSI/EIA-748, EVMS, the general provisions of the contract, and this SOW. The contractor need not establish a separate or unique internal performance management system for purposes of planning, scheduling, directing, statusing, recording or reporting progress under this contract.

X.2.1 Contractor Performance Management System. The contractor's system shall meet the guidelines and be maintained in accordance with the requirements of the EVMS guidelines as described in this contract, under DFARS Clause 252.242-7002, and the contractor's own documented System Description. The Contract Performance Report (CPR) and Integrated Master Schedule (IMS) are developed, maintained, updated/statused, and reported on a monthly basis per CDRL requirements. An EVMS that has been formally validated and accepted by the cognizant contracting officer is required for cost or incentive contracts, subcontracts, and other agreements valued at or greater than \$50M in then-year dollars. The application of these concepts provide for early indications of contract cost and schedule problems. Earned value assessments correlate with technical achievement. For contracts valued at or greater than \$20M but less than \$50M then-year dollars, the above requirements apply, however, in regards to DFARS 252.242-7001 and 252.242-7002, the contractor is required to have an EVMS that complies with ANSI/EIA-748; however, the Government will not formally accept the contractor's management system (no compliance review).

**X.2.2 Integrated Baseline Review (IBR).** An IBR focusing on the realism of the contractor's integrated Performance Measurement Baseline (PMB) and the appropriateness of the earned value methodology to be employed under the contract occurs as soon as possible after the contract PMB is in place, but, in no event without specific authorization of the Contracting Officer, is initiation of the IBR process to be delayed past the sixth month after award of this contract. Incremental IBRs will be conducted as needed throughout the life of the contract for initiation of an undefinitized contract action, and subsequently, when required following major changes to the baseline or replanning. The Government verifies during the IBR, and follow-on IBRs when required, that the contractor has established and maintains a reliable PMB. The contractor ensures that the baseline includes the entire contract technical scope of work consistent with contract schedule requirements and has adequate resources assigned. The contractor assures the Government that effective earned value methods are used to accurately status contract cost, schedule, and technical performance. The IBR is used to achieve a mutual understanding of the baseline plan, cost and schedule risk, and the underlying management processes used for planning and controlling the program. Participation in the IBR is a joint responsibility of both the Government PM and the contractor. The contractor flows-down the IBR requirement to those subcontractors that meet the applicable thresholds for EVM reporting. The contractor leads the IBR at subcontractors, with active participation from the Government.

**X.2.3 Application To Subcontractors.** The contractor flows-down EVM requirements to subcontractors meeting the applicable thresholds and/or assigned critical tasks. The performance information reported by the subcontractors is incorporated and integrated into the contractor's management system. The Contractor is responsible for reviewing and assuring the validity of all subcontractors reporting through surveillance and other means.

<u>Applicable Documents</u>	<u>Title and Tailored Application</u>
DFARS 252.242-7002	Notice of Earned Value Management System

**X.3 Integrated Program Management Reporting.** The Contractor reports EVM data as applicable to this contract in accordance with the requirements stated herein and the CDRL. All reporting corresponds to applicable Contract WBS elements. The Contractor reconciles reporting elements in the Contract Funds Status Report (CFSR) with the CPR when these documents are submitted in the same month. The Contractor provides a reconciliation of the CFSR with CPR as an addendum to the CPR. (DI-MGMT-81466A, DI-MGMT-81468).

**X.3.1 Application To Subcontractors.** Subcontracts exceeding \$50M in then year dollars have applied to them the requirements of DFARS 252.242-7001, DFARS 252.242-7002, Integrated Master Schedule (DI-MGMT-81650) and the CPR (DI-MGMT-81466A). For subcontracts valued at or greater than \$20M but less than \$50M, the above requirements apply, however, In regards to DFARS 252.242-7001 and 252.242-7002, the contractor is required to have an EVMS that complies with ANSI/EIA-748; however, the Government will not formally accept the contractor's management system (no compliance review). EVMS flow down to subcontracts of less than \$20M in then year dollars or Firm Fixed Price (FFP) subcontracts that exceed 12 months duration is a risk-based decision and will be as mutually agreed between the contractor and the Government.

**X.3.2 Electronic Transmission Of Data.** The Contractor formats the deliverable data for electronic data interchange (EDI) in accordance with the ANSI X12 Standard or XML equivalent.

<u>Applicable Document</u>	<u>Title and Tailored Application</u>
ANSI X12	American National Standards Institute, 839 Project Cost Reporting

**X.4.0 Integrated Master Schedule (IMS).** *The IMS will have the following characteristics:*

***X.4.1 It is consistent with the CWBS.***

***X.4.2 It is detailed sufficiently that critical and high risk efforts are identified and planned realistically to assure executability. The IMS will be extended and expanded as the contract or agreement unfolds and additional insight is needed (for example, rolling wave detail planning or scope changes).***

***X.4.3 It includes the efforts of all activities, including subcontractors and suppliers.***

***X.4.4 It presents a current, integrated view of the contract or agreement that is consistent with resource plans, CPRs and other approved documentation.***

***X.4.5 It should reflect those risks identified and documented in the contractor's risk management plan.***

***X.4.6 The Contractor formats the deliverable IMS for EDI. The IMS is created using a network capable Commercially Off the Shelf (COTS) scheduling software application. Unless otherwise provided in the CDRL, the IMS is to be delivered electronically in the native digital format (i.e., an electronic file produced by the contractor's scheduling tool). (DI-MGMT-81650).***

**X.5.0 Over Target Baseline (OTB)/Restructure:** *The contractor may conclude the baseline no longer represents a realistic plan in terms of budget/schedule execution. In the event the contractor determines an OTB/restructuring action is necessary, the contractor obtains customer approval prior to implementing an OTB/restructuring action. The request should also include detailed implementation procedures as well as an implementation timeframe. The contractor will not implement the OTB/restructuring prior to receiving written approval from the Contracting Officer.*



---

## APPENDIX C

### Sample CDRL Forms

***Figure C-1 Sample CDRL for***

***Figure C-2 Sample CDRL for***

***Figure C-3 Sample CDRL for***

***Figure C-4 Sample***

***Figure C-5 Sample***

***Figure C-6 Sample***



---

***SAMPLE CDRL FOR CONTRACT WITH HIGH RISK***

CONTRACT DATA REQUIREMENTS LIST (1 Data Item)					Form Approved OMB No. 0704-0188			
Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reducing Project, (0704-0188), Washington, D.C., 20503. Please DO NOT RETURN your form to either of these addresses, send completed form to the Government-Issuing Contracting Officer for the Contract/PR No. listed in Block E.								
A. CONTRACT LINE ITEM NO.		B. EXHIBIT	C. CATEGORY TDP _____ TM _____ OTHER _____					
D. SYSTEM / ITEM Name of program		E. CONTRACT / PR NO.		F. CONTRACTOR				
1. DATA ITEM NO.	2. TITLE OF DATA ITEM Contract Performance Report (CPR)			3. SUBTITLE				
4. AUTHORITY (Data Item Description No.) DI-MGMT-81466A			5. CONTRACT REFERENCE		6. REQUIRING OFFICE			
7. DD 250 REQ LT	9. DIST STATEMENT REQUIRED C	10. FREQUENCY MONTHLY	12. DATE OF FIRST SUBMISSION See Block 16	14. DISTRIBUTION				
8. APP CODE NO		11. AS OF DATE See Block 16	13. DATE OF SUBSEQUENT SUBMISSION See Block 16	a. ADDRESSEE		b. COPIES		
						FINAL		
						DRAFT Reg Repro		
16. REMARKS Tailor DI-MGMT 81466A as follows:  BLOCK 4:  Report data on Format 1 at CWBS Level 3 except for the following CWBS elements: CWBS XXX, XXX, XXX – report at Level 4  Format 2 is not required.  Format 5 variance analysis are required for the following variances in Format 1: - Top ten current period cost and schedule variances - Top five cumulative cost and schedule variances - Top five Variances at completion - Other significant variances that are causing or are likely to cause significant cost or schedule overruns (contractor determined)  The government reserves the right to review and modify (through negotiations) the reporting levels for Formats 1 and variance thresholds for Format 5 during the performance of the contract.  BLOCK 9: Distribution authorized to US Government agencies and their contractors. Other requests for this document shall be referred to: (specify)  BLOCK 11: The CPR shall be prepared on a monthly basis, as of the end of the contractor's accounting period. Formats 1 and 5 are required to be submitted monthly. Formats 3 and 4 are required to be submitted on a quarterly basis.  Major subcontractor CPRs for the same period will be provided as an attachment to the contractor's CPR.  BLOCK 12: The first submission shall be made NLT 60 days after authorization to proceed.  BLOCK 13: Subsequent submissions shall be due NLT 17 working days after the close of the Contractor's monthly accounting period. Final submission is due when the last significant milestone/deliverable as defined by the contract has been achieved and remaining risk areas have been mitigated, with government concurrence.  BLOCK 14: The ANSI X12 compliant electronic report shall be delivered via EDI to:				Enter office symbols				
								15. TOTAL ⇒
G. PREPARED BY		H. DATE	I. APPROVED BY		J. DATE			

DD FORM 1423-1, JUN 90

Previous editions are obsolete

Page 1 of 1 Pages

FIGURE C – 2

<b>CONTRACT DATA REQUIREMENTS LIST</b> (1 Data Item)						Form Approved OMB No. 0704-0188							
Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reducing Project, (0704-0188), Washington, D.C., 20503. Please DO NOT RETURN your form to either of these addresses, send completed form to the Government-Issuing Contracting Officer for the Contract/PR No. listed in Block E.													
A. CONTRACT LINE ITEM NO.		B. EXHIBIT		C. CATEGORY TDP _____ TM _____ OTHER _____									
D. SYSTEM / ITEM Name of program			E. CONTRACT / PR NO.		F. CONTRACTOR								
1. DATA ITEM NO.		2. TITLE OF DATA ITEM Contract Performance Report (CPR)			3. SUBTITLE								
4. AUTHORITY (Data Item Description No.) DI-MGMT-81466A				5. CONTRACT REFERENCE		6. REQUIRING OFFICE							
7. DD 250 REQ LT	9. DIST STATEMENT REQUIRED C		10. FREQUENCY  MONTHLY	12. DATE OF FIRST SUBMISSION See Block 16		14. DISTRIBUTION							
8. APP CODE NO			11. AS OF DATE  See Block 16	13. DATE OF SUBSEQUENT SUBMISSION See Block 16		a. ADDRESSEE	b. COPIES						
						FINAL							
						DRAFT	Reg						
							Repro						
16. REMARKS Tailor DI-MGMT 81466A as follows:  <b>BLOCK 4:</b>  Report data on Format 1 at CWBS Level 3 except for the following CWBS elements: CWBS XXX – report at Level 2  Formats 1 and 5 only are required.  Format 5 variance analysis are required for the following variances in Format 1: - Top ten current period cost and schedule variances - Top five cumulative cost and schedule variances - Top five Variances at completion - Other significant variances that are causing or are likely to cause significant cost or schedule overruns (contractor determined)  The government reserves the right to review and modify (through negotiations) the reporting levels for Formats 1 and variance thresholds for Format 5 during the performance of the contract.  <b>BLOCK 9:</b> Distribution authorized to US Government agencies and their contractors. Other requests for this document shall be referred to:     (specify)  <b>BLOCK 11:</b> The CPR shall be prepared on a monthly basis, as of the end of the contractor's accounting period. Formats 1 and 5 are required to be submitted monthly.  <b>BLOCK 12:</b> The first submission shall be made NLT 60 days after authorization to proceed.  <b>BLOCK 13:</b> Subsequent submissions shall be due NLT 17 working days after the close of the Contractor's monthly accounting period. Final submission is due when the last significant milestone/deliverable as defined by the contract has been achieved and remaining risk areas have been mitigated, with government concurrence.  <b>BLOCK 14:</b> The ANSI X12 compliant electronic report shall be delivered via EDI to:						Enter office symbols							
												15. TOTAL =>	
						G. PREPARED BY			H. DATE		I. APPROVED BY		J. DATE

---

***FIGURE C – 3***

***SAMPLE CPR CDRL FOR CONTRACT WITH LOW RISK***

CONTRACT DATA REQUIREMENTS LIST (1 Data Item)				Form Approved OMB No. 0704-0188							
Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302 and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. Listed in Block E.											
A. CONTRACT LINE ITEM NO.		B. EXHIBIT  A		C. CATEGORY:  TDP		TM OTHER: X					
D. SYSTEM/ITEM			E. CONTRACT/PR NO.			F. CONTRACTOR					
1. DATA ITEM NO. XXXX		2. TITLE OF DATA ITEM <b>INTEGRATED MASTER SCHEDULE (IMS)</b>				3. SUBTITLE  Page 1 of 1					
4. AUTHORITY (Data Acquisition Document No.)  <b>DI-MGMT-81650</b>			5. CONTRACT REFERENCE  SOW PARA X.X.X			6. REQUIRING OFFICE  PMA-XXX					
7. DD 250 REQ  LT		9. DIST STATEMENT  REQUIRED		10. FREQUENCY  Monthly		12. DATE OF FIRST SUBMISSION  See BLK 16					
8. APP CODE  N/A		11. AS OF DATE  N/A		13. DATE OF SUBSEQUENT SUBMISSION  See BLK 16		14. DISTRIBUTION  ELECTRONICALLY					
16. REMARKS The contractor shall provide the IMS per DID <b>DI-MGMT-81650</b> except or as modified by the following:  <b>Block 4:</b> Modify paragraph 2.4.1.23 to read "The contractor shall submit Schedule Risk Assessments (SRA) and be prepared to actively participate in quarterly SRAs to identify and quantify milestone/event and task/activity level schedule risk. The contractor shall report optimistic, pessimistic, and most likely remaining durations for each <b>Critical Path and Near Critical Path</b> task/activity. The SRA will be performed on the <b>Program Critical Path</b> and the <b>Critical Path and Near Critical Paths</b> to selected critical milestones. The rationale used to establish the remaining durations should be documented. a. Test <b>Program Critical Path</b> – longest path through entire program b. Test <b>Critical Path</b> to next major milestone(s) c. Test <b>Near Critical Paths</b> to next major milestone(s)" Modify paragraph 2.5 with "The first narrative submission is to provide the Basis and Assumptions (B&A) of the IMS. The B&A will outline all major program milestones and/or IMP events and document all associated programmatic schedule assumptions that were utilized in the development of the baseline plan. At a minimum, all monthly submissions will include a written schedule analysis to identify, document, and communicate changes of five (5) working days or greater to <b>Program Critical</b>						a. ADDRESS SEE		b. COPIES			
						Draft		Reg.		Repr	
						PMA-XXX		1			
						AIR-4.2.3		1			





CONTRACT DATA REQUIREMENTS LIST (1 Data Item)					Form Approved OMB No. 0704-0188					
Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reducing Project, (0704-0188), Washington, D.C., 20503. Please DO NOT RETURN your form to either of these addresses, send completed form to the Government-Issuing Contracting Officer for the Contract/PR No. listed in Block E.										
A. CONTRACT LINE ITEM NO.		B. EXHIBIT		C. CATEGORY TDP _____ TM _____ OTHER _____						
D. SYSTEM / ITEM		E. CONTRACT / PR NO.		F. CONTRACTOR						
1. DATA ITEM NO.		2. TITLE OF DATA ITEM Contract Work Breakdown Structure (CWBS)		3. SUBTITLE						
4. AUTHORITY (Data Item Description No.) DI-MGMT-81334B				5. CONTRACT REFERENCE		6. REQUIRING OFFICE				
7. DD 250 REQ LT	9. DIST STATEMENT REQUIRED C	10. FREQUENCY ONE/R	12. DATE OF FIRST SUBMISSION See Block 16	14. DISTRIBUTION						
8. APP CODE		11. AS OF DATE N/A	13. DATE OF SUBSEQUENT SUBMISSION See Block 16	a. ADDRESSEE		b. COPIES				
						DRAFT Reg Repon				
16. REMARKS Blk 4:  The Contractor shall prepare the CWBS in accordance with MIL-HDBK 881 (Work Breakdown Structure) and DI-MGMT-81334B. The contractor shall extend the WBS structure to the lowest level necessary to manage the work. The minimum reporting level shall be according to the approved Cost and Software Data Reporting Plan. The Contractor shall maintain and update the WBS and dictionary throughout the life of the contract and use a CWBS structure for all contract reporting. Prior approval of the Government is required for any changes to the WBS structure at the reporting level.  Blks 10, 12 and 13: The first submission shall be made no later than 60 calendar days after award. Subsequent dates of submission shall be made as required, or upon major revision.  Block 14: The CWBS shall be submitted in electronic format.				Program Mgt Office						
				DCARC						
								15. TOTAL =>		
				G. PREPARED BY		H. DATE		I. APPROVED BY		J. DATE

FIGURE C-5

SAMPLE CDRL FOR CWBS

CONTRACT DATA REQUIREMENTS LIST (1 Data Item)						Form Approved OMB No. 0704-01(M)	
Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302 and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. Listed in Block E.							
A. CONTRACT LINE ITEM NO.		B. EXHIBIT		C. CATEGORY:  TDP    TM    OTHER			
D. SYSTEM/ITEM			E. CONTRACT/PR NO.		F. CONTRACTOR		
1. DATA ITEM NO.	2. TITLE OF DATA ITEM  Contract Work Breakdown Structure (CWBS)				3. SUBTITLE		
4. AUTHORITY (Data Acquisition Document No.)  DI-MGMT-81334			5. CONTRACT REFERENCE		6. REQUIRING OFFICE		
7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY  SEE BLOCK 16	12. DATE OF FIRST SUBMISSION  SEE BLOCK 16	14. DISTRIBUTION			
8. APP CODE		11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION  SEE BLOCK 16	a. ADDRESSEE		b. COPIES	
						Draft	Final
						Reg	Re pro

17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

<b>16. Remarks:</b> Blocks 10, 12, and 13 – DI-MGMT-18334 requires the first submissions to be made no later than 60 days after contract award. The contractor is responsible for maintaining the CWBS Dictionary during the life of the contract. Subsequent dates of submission shall be made as required or upon major revisions. CWBS Dictionary submissions shall not be more frequent than report submission.  Prepare the CWBS in accordance with MIL-HDBK-881, "Work Breakdown Structures for Material Items" and DI-MGMT 81334 (most recently approved version). For Cost and Software Data Reporting (CSDR) purposes, the CWBS must be prepared in accordance with the CSDR Manual (DoD 500.4-M-1) and the contract CSDR Plan approved by the Cost Analysis Improvement Group (CAIG) Chair. The CSDR Manual is available from the Defense cost and Resource Center (DCARC) Website at <a href="http://dcarc.pae.osd.mil">http://dcarc.pae.osd.mil</a> .  The CWBS and Dictionary must be electronically forwarded to the DCARC Website at <a href="http://dcarc.pae.osd.mil">http://dcarc.pae.osd.mil</a> . Prime contractors are responsible for flowing down CSDR requirements contained in their prime contracts to all their subcontractors who meet the reporting thresholds. This includes requiring subcontractors to electronically report directly to the DCARC.		DCARC SEE BLOCK 16				
		15. TOTAL				
G. PREPARED BY		H. DATE	I. APPROVED BY		J. DATE	

DD Form 1423-1, Feb 2001  
 \_\_\_\_\_ of \_\_\_\_\_ Pages

PREVIOUS EDITION MAY BE USED.

Page

## FIGURE C-6

### SAMPLE CDRL FOR CWBS WHEN CCDR is REQUIRED

## APPENDIX D

### ADVANCE AGREEMENT

1. The Advance Agreement (AA) between the Government and a contractor should specify that the contractor uses an effective Earned Value Management System (EVMS) which complies with ANSI/EIA-748 EVMS Guidelines on the current as well as future contracts of a similar type. The AA should document the Government's intent to minimize system reviews. The AA also should document a contractor's corporate commitment to continue to use and maintain the EVMS for current and future Government contracts.
2. The AA should be executed based on prior system validation or following the successful completion of a Validation Review and should usually remain in effect indefinitely. The AA should also be used by DoD to provide continued recognition of a contractor's system as complying with the EVM System Guidelines. Finally, an AA should be used to provide a contractor with DoD recognition of a successful EVMS Validation Review. Once executed, the AA may be used by the contractor to demonstrate that they fulfill the requirements for an EVMS as required by DFARS 252.242-7001.
3. The AA should be signed by the cognizant Contracting Officer (CO) and a contractor representative at a commensurate level. For example, if the contractor uses a common EVMS throughout a Division, the appropriate contractor representative may be the Division Manager. The corresponding Government official would be the CO. Any amendments or changes to the AA, once executed, are to be made through the cognizant CO.
4. A sample AA and a Joint Surveillance Program outline are provided below **as guides**. In addition, to the guidance, the following areas should be considered for inclusion in the AA:
  - (a) applicable contractor and Government policy and directive references;
  - (b) reference to contractor and Government surveillance plans and guidance;
  - (c) the process to follow for system changes;
  - (d) internal coordination requirements for conducting continuing surveillance;
  - (e) documentation and reporting requirements; and
  - (f) documenting "rules of engagement" for resolution of areas of concern that are found through EVMS surveillance.

**Neither of the following sample documents is intended to be applied exactly as shown but should be modified to fit the contractor, program, and CMO/DCAA requirements and capabilities.**

**Advance Agreement  
between**

**(Cognizant CMO's name, service, component, etc.)  
and  
(Contractor's name, division, location, etc.)**

for

**Implementation and Maintenance  
of the  
Earned Value Management System**

This document establishes an Advance Agreement between the [name of the cognizant CMO] and [contractor name, division, location] regarding the implementation and maintenance of an Earned Value Management System. This agreement specifically addresses [contractor name, division, location] use of the [name of the contractor's EVMS] to meet the EVMS Guidelines established by the ANSI/EIA-748.

Whereas, the contractor has demonstrated certain management systems and subsystems as identified in [Contractor Document that identifies the contractor's EVMS commitment dated (date)], and

The [Government component], by letter dated [date], did recognize the compliance of such systems and subsystems with the EVMS Guidelines, then

THE [NAME OF THE COGNIZANT CMO] AND [CONTRACTOR NAME, DIVISION, LOCATION] AGREE THAT:

(1) Such systems and subsystems which have been recognized as indicated above, together with approved changes thereto, apply to future [specify type of contract; for example, RDT&E, production or both] contracts, which require compliance with EVMS Guidelines, entered into between the contractor and the Government.

(2) As a result of this agreement [contractor name, division, location] agrees to maintain the [name of the contractor's EVMS], as a DoD compliant integrated management system, through an internal surveillance program [other means; e.g., joint surveillance between the CMO, PM, and the contractor, are acceptable but should be specifically identified].

**(NOTE: THE FOLLOWING OPTIONAL LANGUAGE IS FOR CMOs USING THE  
PRIOR-APPROVAL WAIVER FOR EVM SYSTEM CHANGES)**

(3) The [Cognizant CO], under the authority of DFARS clause 252.242-7002 [March 2005], agrees to waive the pre-approval requirements for system changes as provided in paragraph [ ] of DFARS clause 252.242-7002 [March 2005]. Pursuant to DFARS clause 252.242-7002 [March 2005] [contractor name, division, location] is required to disclose changes to the [name of the contractor's EVMS], to [Cognizant CO], at least two weeks prior to implementation. This waiver applies to all contracts, both current and future, which contain DFARS clause 252.242-7002 [date].


This Advance Agreement remains in force indefinitely, subject to modification by mutual agreement or termination by either party.

---

Contracting Officer (CO)

---

Contractor Vice President and General Manager



(or equivalent)

**JOINT SURVEILLANCE PROGRAM  
AS IMPLEMENTED AT  
[Contractor's Name, Division, Location]**

**References: (a) Rules of Engagement**

**I. CHARTER AND OBJECTIVES:**

The Joint IST and [contractor name, division, location] Surveillance Team is established to:

**A.** Ensure that [contractor name, division, location]' implementation of [name of the contractor's EVMS] continues to:

1. Be used by the contractor for program management and is integrated into the contractor's scheme of risk identification and abatement.
2. Comply with the EVMS Guidelines by:
  - a. Training designated program personnel in the use of the [name of the contractor's EVMS].
  - b. Accomplishing early, comprehensive planning to provide a quality baseline ready for examination in the Integrated Baseline Review (IBR) process.
  - c. Integrating cost, schedule, and technical planning into a single, well controlled performance measurement baseline.
  - d. Establishing clear lines of authority and responsibility for accomplishment of work elements.
  - e. Using problem identification information early, and continuously, to formulate corrective action/work around plans to mitigate significant variances from the baseline plan.
  - f. Providing valid and timely management information.

**B.** Encourage continuous improvement and innovation of the EVMS.

**C.** Ensure that [contractor name, division, location]'s external cost and schedule reports contain:

1. Information that depicts actual conditions.
2. Information derived from the same database as that used by [contractor name, division, location] for management of the business.
3. Variance analyses that include corrective action taken or to be taken in regard to cost, schedule, technical, other problem areas, as well as proposed date(s) for cost and schedule recovery.

**D.** Maintain a disciplined management process using EVMS, including effective teamwork between [contractor name, division, location] and the Government.

**E.** Effectively communicate surveillance findings/results to appropriate [contractor name, division, location] and Government individuals and follow up on the findings/results to assure early correction of system problems.

**F.** Maintain metrics to determine the effectiveness of the performance measurement system and to distinguish between systemic and non-systemic problems.

**G.** Reduce the cost of surveillance by combining resources to achieve common goals.

## II. JOINT SURVEILLANCE PROCESS:

**A. Earned Value Management System.** Surveillance emphasis of the [Contractor's name, division, location]'s accepted system occurs in five principal areas:

- Demonstrated use of EVMS data as an integral part of program management.
- Demonstrated commitment to continuous EVMS improvement.
- Early identification of systemic problems.
- Timely maintenance of the [name of the contractor's EVMS].
- Effective and responsive corrective action.

**B. Surveillance is not an audit function.** It is a cooperative effort between the surveillance personnel and the Control Account Managers (CAMs), Business Managers, Schedulers and PMs toward the shared goal of timely identification and correction of problems.

**C. Joint Surveillance Team.** The team consists of individuals from [contractor's name, division, location], CMO, PMO, and DCAA (where appropriate).

**D. Communications.** [contractor's name, division, location], and CMO management recognize the Joint Surveillance Team as an integral part of the EVMS system and communicate openly with this team. Joint surveillance results are a topic of discussion at periodic management meetings. [contractor's name, division, location] provides access to data generated from the performance measurement system and keeps the Joint Surveillance Team advised, via the CMO EVMS Specialist, of planned or actual changes that would impact the [name of the contractor's EVMS], changes in software tools, key personnel changes, organization structures, and procedures. Changes are normally discussed at the periodic program reviews. Changes of underlying systems are specifically identified when planned.

**E. Surveillance Schedule.** The Joint Surveillance Team establishes a surveillance schedule with periodic meetings for the review of EVMS metrics, results from program surveillance activities, results from CPR analysis, results from IBRs, and concerns of the Government Program Office. The "Rules of Engagement" document (ref. (a)) outlines how findings from surveillance are documented and conflicts resolved.

**F. Reviews:** Data collected through surveillance and open areas of concern from IBRs and Government Program Offices are used as inputs to the surveillance review process. Targeted reviews are conducted by team members (contractor/Government mix) when surveillance activities reveal areas where EVMS compliance is no longer within acceptable limits and when other inputs point to areas of concern. The "Rules of Engagement" document (ref. (a)) outlines how findings from reviews are documented and conflicts resolved.

This Joint Surveillance Program remains in place indefinitely, subject to modification by mutual agreement or termination by either party.

---

EVMS Specialist	Date
-----------------	------

---

Contractor EVMS Manager	Date
-------------------------	------



## APPENDIX E

### SAMPLE AWARD FEE CRITERIA

<b>MANAGEMENT #1</b>	EVM is effectively integrated and used for program management.
<b>UNSATISFACTORY -</b>	Contractor fails to meet criteria for satisfactory performance.
<b>SATISFACTORY</b>	Contractor team uses earned value performance data to make program decisions as appropriate.
<b>GOOD</b>	<b>Meets all the SATISFACTORY requirements plus:</b> Earned value performance is effectively integrated into program management reviews and is a primary tool for program control and decision-making.
<b>VERY GOOD</b>	<b>Meets all of the GOOD requirements plus:</b> Contractor team develops and sustains effective communication of performance status on a continual basis with the Government.
<b>EXCELLENT</b>	<b>Meets all the VERY GOOD requirements plus:</b> Proactive, innovative use of EVM by entire contractor team. Plans and implements continual process improvement in using EVM.

<b>MANAGEMENT #2</b>	Management of major subcontractors.
<b>UNSATISFACTORY -</b>	Contractor fails to meet criteria for satisfactory performance.
<b>SATISFACTORY</b>	Contractor routinely reviews the subcontractor's performance measurement and baseline.
<b>GOOD</b>	<b>Meets all the SATISFACTORY requirements plus:</b> Contractor's management system is structured for oversight of subcontractor performance.
<b>VERY GOOD</b>	<b>Meets all of the GOOD requirements plus:</b> Contractor actively reviews and manages subcontractor progress. Clear and accurate status reporting to the Government.
<b>EXCELLENT</b>	<b>Meets all the VERY GOOD requirements plus:</b> Effective, timely communication of subcontractor cost and schedule status to the Government. Issues are proactively managed.

<b>MANAGEMENT #3</b>	Realistic and current cost, expenditure, and schedule forecasts.
<b>UNSATISFACTORY -</b>	Contractor fails to meet criteria for satisfactory performance.
<b>SATISFACTORY</b>	Provides procedures for delivering realistic and up-to-date cost, and schedule forecasts as presented in Contract Performance Report, formal estimate at completion, Contract Funds Status Report, Integrated Master Schedule, etc. The forecasts are complete and consistent with program requirements and are reasonably documented.
<b>GOOD</b>	<b>Meets all of the SATISFACTORY requirements plus:</b> All requirements for additional funding and schedule changes are thoroughly documented and justified. Expenditure forecasts are consistent and logical and based on program requirements. Contractor acknowledges cost growth (if any) in the current reporting period and provides well documented forecasts.
<b>VERY GOOD</b>	<b>Meets all of the GOOD requirements plus:</b> Expenditure forecasts reflect constant scrutiny to ensure accuracy and currency. Contractor prepares and develops program cost and schedule data that provides clear Government visibility into current and forecast program costs and schedule. Schedule milestone tracking and projections are very accurate and reflect true program status. Keeps close and timely communications with the Government.
<b>EXCELLENT</b>	<b>Meets all of the VERY GOOD requirements plus:</b> Contractor consistently submits a high quality estimate at completion that is current and realistic. Reported expenditure profiles are accurate. Develops comprehensive, clear schedule data that provides excellent correlation with technical performance measures and cost performance reports and permits early identification of problem areas. Schedule milestone tracking and projections are accurate and recognize potential program impact.

<b>MANAGEMENT #4</b>	Adequacy of cost proposals submitted during award fee period.
<b>UNSATISFACTORY -</b>	Contractor fails to meet criteria for satisfactory performance.
<b>SATISFACTORY</b>	Proposal data, including subcontractor data, is logically organized and provides adequate visibility to the Government to support technical review and cost analysis. A basis of estimate is documented for each element. When insufficient detail is provided, the contractor provides it to the Government on request. Proposal is submitted by mutually agreed to due date.
<b>GOOD</b>	<b>Meets all of the SATISFACTORY requirements plus:</b> Detailed analysis is provided for subcontractor and material costs.
<b>VERY GOOD</b>	<b>Meets all of the GOOD requirements plus:</b> Proposal data is traceable and provides visibility to the Government to support a detailed technical review and thorough cost analysis. Only minor clarification is required. Potential cost savings are considered and reported in the proposal.
<b>EXCELLENT</b>	<b>Meets all of the VERY GOOD requirements plus:</b> Change proposals are stand-alone and require no iteration for Government understanding. Contractor communicates during the proposal preparation phase and effectively resolves issues before submission.

<b>MANAGEMENT #5</b>	Cost control.
<b>UNSATISFACTORY -</b>	Contractor fails to meet criteria for satisfactory performance.
<b>SATISFACTORY</b>	Controls self and subcontractor cost performance to meet program objectives.
<b>GOOD</b>	<b>Meets all of the SATISFACTORY requirements plus:</b> Establishes means to stay within target cost. Provides good control of all costs during contract performance.
<b>VERY GOOD</b>	<b>Meets all of the GOOD requirements plus:</b> Provides measures for controlling contract cost at or slightly below target cost. Provides suggestions to the program office and implements them when appropriate. Implements some ideas for cost reduction.
<b>EXCELLENT</b>	<b>Meets all of the VERY GOOD requirements plus:</b> Provides suggestions and when appropriate, proposals to the program office for initiatives that can reduce future costs. Implements cost reduction ideas across the program and at the subcontract level. Identifies (and when appropriate implements) new technologies, commercial components, and manufacturing processes that can reduce costs.

<b>MANAGEMENT #6</b>	Variance analysis in performance reports.
<b>UNSATISFACTORY -</b>	Contractor fails to meet criteria for satisfactory performance.
<b>SATISFACTORY</b>	Variance analysis is sufficient. Contractor usually keeps the Government informed of problem areas, the causes, and corrective action. When insufficient detail exists, the contractor provides it to the Government promptly upon request.
<b>GOOD</b>	<b>Meets all of the SATISFACTORY requirements plus:</b> Contractor routinely keeps the Government informed of problem areas, the causes, and corrective action. Explanations are updated on a monthly basis. Action taken to analyze potential risks for cost and schedule impacts.
<b>VERY GOOD</b>	<b>Meets all of the GOOD requirements plus:</b> Contractor always keeps the Government informed of problem areas, the causes, and corrective action. Variance analysis is thorough and is used for internal management to control cost and schedule. Detailed explanations and insight are provided for schedule slips or technical performance that could result in cost growth. The Government rarely requires further clarification of the analysis.
<b>EXCELLENT</b>	<b>Meets all of the VERY GOOD requirements plus:</b> Variance analysis is extremely thorough. Contractor proactively keeps the Government informed of all problem areas, the causes, emerging variances, impacts, and corrective action. Contractor keeps the Government informed on progress made in implementing the corrective action plans. Analysis is fully integrated with risk management plans and processes.

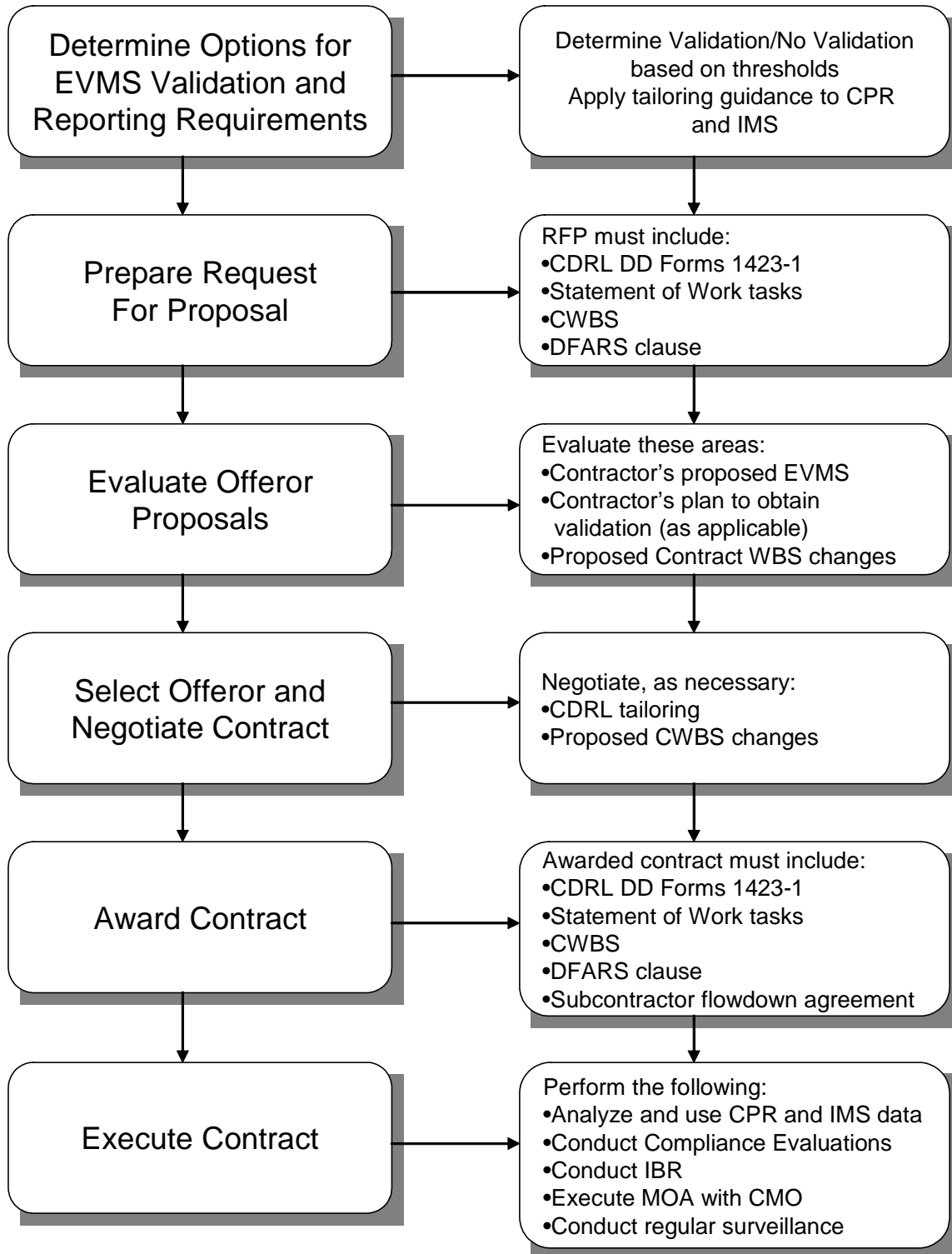
DISCIPLINE #1	Accuracy, timeliness, and consistency of billing and cumulative performance data; and integration of subcontractor data.
<b>SATISFACTORY</b>	Billings to the Government may have slight delays and/or minor errors. CPR, CFSR, and IMS reports are complete and consistent with only minor errors. Data can be traced to the WBS with minimum effort. Subcontractor cost and schedule data are integrated into the appropriate reports with some clarification required. Reports are occasionally submitted late. Electronic data is submitted correctly per the ANSI X12 format.
<b>GOOD</b>	<b>Meets all of the SATISFACTORY requirements plus:</b> Billings to the Government are accurate though there are slight delays. Data is complete, accurate, consistent, and shows traceability to the WBS, with some clarification required. Subcontractor performance data is fully integrated into the appropriate reports with no clarification required and reports are submitted on time.
<b>VERY GOOD</b>	<b>Meets all of the GOOD requirements plus:</b> Data is complete, accurate, and consistent, with little or no clarification required.
<b>EXCELLENT</b>	<b>Meets all of the VERY GOOD requirements plus:</b> Billings are submitted to the Government on time. Data is complete, accurate, and consistent, with clear traceability to the WBS. Data elements are fully reconcilable between the CPR and the CFSR. Subcontractor schedule performance is vertically and horizontally integrated with the contractor schedule.

DISCIPLINE #2	Baseline discipline and system compliance.
<b>SATISFACTORY</b>	The contractor develops a reliable performance measurement baseline that includes work scope, schedule, and cost. The contractor or Government may discover system deficiencies or baseline planning errors through either routine surveillance or data inaccuracies in the CPRs. Contract changes and UB are normally incorporated into the baseline in a timely manner. MR is tracked and used in proper manner. Elimination of performance variances is limited to correction of errors.
<b>GOOD</b>	<b>Meets all of the SATISFACTORY requirements plus:</b> Requirements are addressed up front to minimize changes and future cost and schedule growth. Contract changes and UB are always incorporated into the baseline in a timely manner. System deficiencies or baseline planning errors are quickly assessed and corrected, resulting in minor impact to data accuracy. Provides for the continuous review of the baseline to assure that it is current and accurate thereby maintaining its usefulness to management. Cost and schedule baselines are fully integrated.
<b>VERY GOOD</b>	<b>Meets all of the GOOD requirements plus:</b> Builds proper baseline in a timely manner. Provides realistic performance baseline. Ensures work packages are detailed and consistent with scope of contract and planned consistent with schedule. Contractor conducts routine surveillance that reveals minor system deficiencies or minor baseline planning errors, which are quickly assessed and corrected, resulting in little or no impact to data accuracy. Contractor EVMS is effectively integrated with other management processes.
<b>EXCELLENT</b>	<b>Meets all of the VERY GOOD requirements plus:</b>

Proactively manages baseline. Maintains timely detail planning as far in advance as practical and implements proper baseline controls. Controls and minimizes changes to the baseline particularly in the near term. System deficiencies or planning errors are few and infrequent. Contractor takes initiative to streamline internal processes and maintains high level of EVMS competency and training across organization.

## APPENDIX F

### SUMMARY OF EVM IMPLEMENTATION ACTIONS



## APPENDIX G

### ESSENTIAL ELEMENTS OF A BUSINESS CASE ANALYSIS

**1.0 Business Case Analysis (BCA) Overview.** A business case is a persuasive and compelling argument advocating a course of action to achieve one or more business objectives. A well constructed business case presents a definite point of view and should prove to the decision maker that the recommended action is the best option. In this particular case, the implied course of action under consideration is the application of EVM in a situation normally excluded from application. A BCA is conducted to analyze the application of EVM to a contract that would normally be excluded from EVM application per DoD policy, primarily firm fixed price contracts or cost reimbursable contracts <\$20M in value. Current DoD policy requires that the Milestone Decision Authority (MDA) approve BCAs.

**2.0 BCA Contents.** The following description contains a generally accepted outline of the contents of a business case and the BCA report. This is provided as guidance only, and the program office is encouraged to conduct and tailor the business case in a way that best meets the need of the individual program. Specific EVM guidance is included as appropriate in the following description.

**2.1 Common Elements.** BCAs contain a common set of elements that can be tailored according to the degree of application required for a particular contract. These common elements are:

- **Problem definition**, which includes establishing an objective for the analysis; stating the assumptions which frame the analysis; and, as appropriate, laying out alternative solutions to the problem being analyzed. **This should include rationale for (1) selection of the FFP contract type versus selection of a cost type or incentive type contract or (2) application of an EVM requirement to a contract <\$20M.**
- **Data collection phase** which identifies and obtains the data needed to meet the objective of the analysis (cost, benefits, etc.).
- **Evaluation phase** analyzing the data to address the objective of the business case and to develop findings which specifically relate the data to the objective. Both quantitative and qualitative benefits for the proposed solution should be evaluated.
- **A report or briefing** which presents the conclusions and recommendations of the BCA.

**2.2 BCA Report.** A report should be written to document the elements described in paragraph 2.1. The top level decision briefing should contain the following:

- Charter (objectives of the BCA)
- Scope (boundaries of the BCA)
- Assumptions
- Methodology (description of data and analysis process)
- Status quo (description of status quo, i.e., no EVM implementation, and baseline costs)
- Proposed solution (description of EVM implementation, tailoring approach, and costs)
- Summary (comparison of costs, benefits, and potential drawbacks)
- Recommendation

## APPENDIX H

### GLOSSARY OF TERMS

**Actual Cost of Work Performed (ACWP).** (or Actual Cost) The costs actually incurred and recorded in accomplishing the work performed within a given time period. ACWP reflects the applied costs. May be expressed as a value for over a specific period or cumulative to date.

**Actual Direct Costs (ADC).** Those costs identified specifically with a contract, based upon the contractor's cost identification and accumulation system as accepted by the cognizant Defense Contract Audit Agency (DCAA) representatives (see Direct Costs).

**Administrative Contracting Officer (ACO).** The individual within the Contract Management Office (CMO) responsible for ensuring that the functions described in DFARS 242.302 are completed by the contractor in accordance with the terms and conditions of the contract.

**Advance Agreement (AA).** An agreement between the contractor and the CMO that recognizes the application of a validated EVMS to contracts within the corporation, division or facility.

**Allocated Budget.** (see Total Allocated Budget)

**Applied Direct Costs (ADC).** The actual direct costs recognized in the time period associated with the consumption of labor, material, and other direct resources, without regard to the date of commitment or the date of payment. These amounts are to be charged to work-in-process when any of the following takes place: labor, material or other direct resources are actually consumed; material resources are withdrawn from inventory for use; material resources are received that are uniquely identified to the contract and scheduled for use within 60 days; major components or assemblies that are specifically and uniquely identified to a single serially numbered end item are received on a line flow basis.

**Apportioned Effort (AE).** A method of planning and measuring the earned value for effort that is both (a) related in direct proportion to measured effort and (b) by itself is not readily measurable or broken into discrete work packages. The budget for AE is time-phased to the base accounts and the earned value is directly proportional to performance on the base account. The normal method for planning and statusing is to apply a percentage against the base account.

**Authorization to Proceed (ATP).** Official authority for the contractor to begin work. Usually issued by the procuring contracting officer.

**Authorized Work.** The sum of the effort which has been definitized and is on contract, plus that effort for which definitized contract costs have not been agreed to but for which written authorization has been received.

**Baseline.** (See Performance Measurement Baseline)

**Bill of Material (BOM).** A listing of material items required to complete the production of a single unit. When actual or expected prices are applied, it becomes the Priced Bill of Material (PBOM).

**Budget at Completion (BAC).** The sum of all performance budgets established for the contract. BAC is a term that may also be applied to lower levels, such as the PMB or at the control account level. (see Total Allocated Budget).

**Budgeted Cost for Work Performed (BCWP or Earned Value).** The value of completed work expressed as the value of the performance budget assigned to that work. This is equal to the sum of the budgets for completed work packages, completed portions of open work packages, AE earned on the base accounts, and the value of LOE activities. May be expressed as a value for a specific period, or cumulative to date.

**Budgeted Cost for Work Scheduled (BCWS or Planned Value).** The sum of the performance budgets for all work scheduled to be accomplished with a given time period. This includes detailed work packages, planning packages, AE, plus LOE packages. May be expressed as a value for a specific period, or cumulative to date.

**Compliance.** The continuing operation of the company's EVMS in accordance with the 32 EVMS guidelines in ANSI/EIA-748.



**Contract Budget Base (CBB).** The sum of the negotiated contract cost plus the estimated cost of authorized unpriced work.

**Contract Management Office (CMO).** The Government organization assigned responsibility for ensuring that the contractor complies with the terms and conditions of the contract. This is normally assigned to DCMA.

**Contract Data Requirements List (CDRL).** A compilation of all data requirements, made part of the contract, and which the contractor is obligated to deliver to the Government.

**Contract Performance Report (CPR).** A contractually required report, prepared by the contractor, containing performance information derived from the internal EVMS. Provides status of progress on the contract. (DI-MGMT-81466A)

**Contract Work Breakdown Structure (CWBS).** The complete WBS for a contract. It includes the DoD approved WBS for reporting purposes and its discretionary extension to the lower levels by the contractor, in accordance with MIL-HDBK 881 (current version) and the contract statement of work. It includes all the elements for the hardware, software, data or services which are the responsibility of the contractor.

**Contract Work Breakdown Structure Dictionary.** A contractually required document, prepared by the contractor that describes and defines the elements in the CWBS structure. (DI-MGMT-81334B)

**Contractor.** An entity in private industry which enters into contracts with the Government. In this guide, the word also applies to Government-owned, Government-operated activities which perform work on major defense programs.

**Control Account (CA).** (formerly called Cost Account) A management control point at which budgets (resource plans) and actual costs are accumulated and compared to earned value for management control purposes. A control account is a natural management point for planning and control since it represents the work assigned to one responsible organizational element (or integrated work team) for a single program WBS element.

**Control Account Manager (CAM).** A single manager within the contractor's organizational structure that has been given the authority and responsibility to manage one or more control accounts.

**Cost Accounting Standards (CAS).** Requirements established by the Cost Accounting Standards Board (CASB) to ensure consistent and proper accounting for direct and indirect costs applied to Government contracts.

**Cost Variance.** A metric for showing cost performance derived from earned value data. It is the algebraic difference between earned value and actual cost (cost variance = earned value - actual cost.) A positive value indicates a favorable condition and a negative value indicates an unfavorable condition. It may be expressed as a value for a specific period of time or cumulative to date.

**Critical Path.** A sequence of discrete work packages and planning packages (or lower level tasks/activities) in the network that has the longest total duration through an end point that is calculated by the schedule software application. Discrete work packages and planning packages (or lower level tasks/activities) along the critical path have the least amount of float/slack (scheduling flexibility) and cannot be delayed without delaying the finish time of the end point effort. Essentially 'Critical Path' has the same definition as 'Program Critical Path' with the exception that the end point can be a milestone or other point of interest in the schedule. Example: a critical path could be run to PDR, CDR, and/or First Flight, etc. within a System Development Demonstration contract.

**Critical Path Analysis.** A method for identification and assessment of schedule priorities and impacts, focusing on the network critical path. See Network Schedule.

**Defense Contract Audit Agency (DCAA).** The Defense Department organization tasked with monitoring a contractor's design and implementation of an acceptable accounting system.

**Direct Costs.** Any costs that may be identified specifically with a particular cost objective. This term is explained in the Federal Acquisition Regulation.

**Discrete Effort.** Work packages and planning packages (or lower level tasks/activities) that are related to the completion of specific end products or services and can be directly planned and measured.

**Earned Value.** The value of completed work. See Budget Cost for Work Performed.

**Earned Value Management (EVM).** A program management tool that integrates the work scope, schedule, and cost parameters of a program, in a manner providing objective performance measurement and management. As work is performed, the corresponding budget value is “earned”.

**Earned Value Management System Specialist.** That person within the CMO assigned responsibility for ensuring the proper and continuing implementation of the approved EVM system on contracts through surveillance and analysis.

**Earned Value Management System (EVMS).** A company’s management system and related sub-systems that establishes the relationship between the cost, schedule, and technical aspects of the work; measures progress objectively with earned value metrics; accumulates actual costs; allows for analysis of deviations from plans; allows for forecasting achievement of milestones and contract events; allows for forecasting of estimated costs; and provides discipline in incorporating changes to the baseline in a timely manner.

**Earned Value Management System Guidelines.** The set of 32 guidelines, established by ANSI/EIA-748, that define the requirements the contractor’s EVM system should meet.

**Earned Value Management Support Staff (EVMSS).** The procuring activity’s subject matter expert responsible for providing EVM technical support to program management offices.

**Estimate at Completion (EAC).** The estimated total cost for all authorized work. Equal to the sum of actual costs to date (including all allocable indirect costs), plus the estimated costs to completion (estimate to complete).

**Estimate to Complete (ETC).** Estimate of costs to complete all work from a given point in time to the end of the contract.

**Horizontal Integration.** Demonstrates that work is planned in a logical sequence considering the interdependencies among work packages and planning packages (or lower level tasks/activities), ensuring that the overall schedule is rational, and provides methodology to evaluate the impact of current schedule status on subsequent work packages and planning packages (or lower level tasks/activities) and milestones. Horizontal integration depicts schedule dependencies and constraints, focusing on relationships within the same scheduling level including between different program elements such as “hand-offs” of products between IPTs.

**General & Administrative (G&A).** An indirect rate established by the company that allocates the cost of corporate home office expenses to all contracts.

**Indirect Costs.** Costs which because of their incurrence for common or joint objectives, are not readily subject to treatment as direct costs. This term is further defined in FAR 31.203.

**Integrated Baseline Review (IBR).** A joint Government/contractor review to assess the realism and accuracy of the integrated performance measurement baseline (work, schedule, and budget).

**Integrated Management System.** A type of integrated management system (See EVMS definition above) which may or may not “measure progress objectively with earned value metrics”.

**Integrated Master Schedule (IMS).** An integrated schedule containing the networked, detailed tasks necessary to ensure successful program execution. (DI-MGMT-81650)

**Integrated Process and Product Development (IPPD).** The DoD management technique that simultaneously integrates all essential acquisition activities through the use of multidisciplinary teams to optimize design, manufacturing, and supportability processes. One of the key IPPD tenets is multidisciplinary teamwork through Integrated Product Teams (IPTs).

**Integrated Product Team (IPT).** A multidisciplinary team assigned management responsibility for one or more elements of an acquisition program.

**Integrated Risk Assessment (IRA).** Analysis and assessment of overall program risk. Separate risk assessments are performed on a program’s technical, schedule, and cost baseline estimates, which are then combined into a single probabilistic distribution of estimated program cost.

**Letter of Acceptance (LOA).** A letter issued by the ACO that recognizes the successful validation of the contractor’s EVMS and its application within a specific facility.

**Letter of Delegation (LOD).** A document assigning contract administration functions from one CMO to another, usually in a prime-subcontractor relationship.

**Level of Effort (LOE).** Effort of a general or supportive nature which does not produce definite end products and cannot be practically measured by discrete earned value techniques. Earned value is measured by the passage of time.

**Management Reserve (MR).** An amount of the total budget withheld for management control purposes, rather than designated for the accomplishment of a specific task or set of tasks. It is held and applied through a disciplined process to any additional work that is to be accomplished within the authorized work scope of the contract or applied to accommodate rate changes for future work. It may not be used to offset or minimize existing cost variances.

**Milestone.** A specific definable accomplishment in the contract network, recognizable at a particular point in time. Milestones have zero duration, do not consume resources and have defined entry and exit criteria. A milestone may mark the start and/or finish, of an interim step, event and/or program phase.

**Near Critical Path.** The lowest float/slack paths of discrete work packages and planning packages (or lower level tasks/activities) in the network that has the longest total duration nearest to the critical path. Using nearest paths, vice a set value, allows the near critical path to have the possibility of always ranging in different float values based on the latest status of the schedule – i.e., the float/slack values associated with the near critical paths may differ from schedule update to schedule update depending on the status of the schedule.

**Negotiated Contract Cost (NCC).** The estimated cost negotiated in a cost-plus-fixed-fee contract or the negotiated contract target cost in either a fixed-price-incentive contract or a cost-plus-incentive-fee contract.

**Network Schedule.** A schedule format in which the activities and milestones are represented along with the interdependencies between work packages and planning packages (or lower level tasks/activities). It expresses the logic (i.e., predecessors and successors) of how the program is to be accomplished. Network schedules are the basis for critical path analysis, a method for identification and assessment of schedule priorities and impacts. At a minimum, all discrete work is included in the network.

**Organizational Breakdown Structure (OBS).** A functionally-oriented breakdown of the contractor's organization established to perform the work on a specific contract.

**Over Target Baseline (OTB).** An established performance budget that exceeds the value of the negotiated contract.

**Over Target Schedule (OTS).** An established schedule that extends beyond the contract milestones or delivery dates.

**Overhead.** (see Indirect Cost definition.)

**Performance Measurement Baseline (PMB).** The time-phased budget plan for accomplishing work, against which contract performance is measured. It includes the budgets assigned to scheduled control accounts and the applicable indirect budgets. For future effort, not planned to the control account level, the PMB also includes budgets assigned to higher level CWBS elements, and to undistributed budgets. It does not include management reserve.

**Performing Organization.** A defined unit within the contractor's organization structure, which applies the resources to perform the work.

**Planned Value.** (see Budgeted Cost for Work Scheduled.)

**Planning Package.** A holding account (within a control account) for budget for future work that is not yet practicable to plan at the work package level. The planning package budget is time-phased in accordance with known schedule requirements (due dates) for resource planning and the plans are refined as detail requirements become clearer and the time to begin work draws nearer. A company may elect to break the work assigned to a control account into smaller groupings of tasks/activities, i.e., multiple planning packages, for internal planning and control reasons.

**Program Critical Path.** A sequence of discrete work packages and planning packages (or lower level tasks/activities) in the network that has the longest total duration through the contract or program that is calculated by the schedule software application. Discrete work packages and planning packages (or lower level tasks/activities) along the critical path have the least

amount of float/slack (scheduling flexibility) and cannot be delayed without delaying the finish time of the entire work effort.

**Program Management Office (PMO).** The Government office that has the assigned authority and responsibility to directly manage a program.

**Procuring Activity.** The subordinate command to which the Procuring Contracting Officer (PCO) is assigned. It may include the program office, related functional support offices, and procurement offices.

**Program Work Breakdown Structure (PWBS).** The WBS that covers the acquisition of a specific defense materiel item and includes all contractual and Governmental work activities.

**Progress Assistance Visit (PAV).** An initial assessment of the contractor's readiness to demonstrate their EVMS compliance, usually conducted within 30 days after contract award.

**Replanning.** The redistribution of existing budget for future work.

**Responsibility Assignment Matrix (RAM).** A chart showing the relationship between the CWBS elements and the organizations assigned responsibility for ensuring their accomplishment. The RAM normally depicts the assignment of each control account to a single manager, along with the assigned budget.

**Responsible Organization.** A defined unit within the contractor's organization structure which is assigned responsibility for accomplishing specific tasks.

**Review for Cause (RFC).** A Government review of specific elements of the contractor's EVMS that have displayed a lack of discipline in application or no longer meet the requirements of the EVMS guidelines. Used to determine whether the company's EVMS validation should be withdrawn.

**Risk Assessment.** The problem definition stage of risk management that identifies and analyzes potential program risk events in terms of probability and their consequences/impacts.

**Schedule.** A plan which shows when specified work is to be done to accomplish program objectives on time.

**Schedule Risk Assessment (SRA).** A process which uses statistical techniques to identify technical, programmatic, and schedule risks in a program and quantifies the impact of those risks on the program's schedule.

**Schedule Variance (SV).** A metric for the schedule performance derived from earned value metrics. It is the algebraic difference between earned value and the budget (schedule variance = earned value – planned value). A positive value is a favorable condition while a negative value is unfavorable. It may be expressed as a value for a specific period of time or for cumulative to date.

**Significant Variances.** Any variances (CV, SV or VAC) that require further review, analysis or action.

**Summary Level Planning Package (SLPP).** An aggregation of work for far-term efforts, not able to be identified at the control account level, which can be assigned to reporting level WBS elements (and is therefore not "undistributed budget").

**Statement Of Work (SOW).** The document that defines the work scope requirements for a contract.

**Surveillance.** A recurring process by an independent party, normally DCMA, assessing the continuing compliance of the company's EVMS with ANSI/EIA-748 and the company's written system documentation.

**Task/Activity.** An element of work performed during the course of a program. An activity has an expected duration, expected cost and expected resource requirements. Some systems may define task/activity at a level below the work package while other systems do not differentiate between the two.

**Total Allocated Budget (TAB).** The sum of all budgets allocated to the contract. TAB consists of the PMB and all management reserve. The TAB reconciles directly to the contract budget base. If the TAB is greater than the CBB, the difference is attributable to an over target baseline.

**Undistributed Budget (UB).** A temporary holding account for budget for authorized work that has not yet been planned in detail at the control account or summary level planning package level.

**Validation.** A formal recognition of certification by an independent party that a company's EVMS meets the guidelines in ANSI/EIA-748.

**Validation Review (VR).** A formal Government review conducted at a contractor's facility to assess the contractor's proposed EVMS compliance with ANSI/EIA-748.

**Variance at Completion (VAC).** The difference between the budget at completion and the estimate at completion is  $VAC = BAC - EAC$ . It may be calculated at any level from the control account up to the total contract. It represents the amount of expected overrun (negative VAC) or underrun (positive VAC).

**Vertical Integration.** Demonstrates the consistency of data between the various levels of schedules and consistency of data between various WBS elements and/or IMP/IMS elements (if applicable) within the schedules. Since upper-tiered schedules set the parameters for lower level schedules, it is imperative that lower level schedules are traceable to upper-tiered milestones to ensure program schedule integrity. This ensures that all Integrated Product Teams are working to the same schedule information and all levels of schedules are supportive of the program schedule requirements.

**Work Breakdown Structure (WBS).** A product-oriented family tree division of hardware, software, services, and other work tasks which organizes, displays, and defines the product to be developed and/or produced. The WBS relates the elements of the work to be accomplished to each other and to the end product(s). MIL-HDBK 881 (current version) provides a standard WBS approach.

**Work Package.** Natural subdivision of control accounts. A work package is simply a task/activity or grouping of work. A work package is the point at which work is planned, progress is measured, and earned value is computed. It can be translated into different terms in different companies and functions. It can be a design job, a tool design package, a build-to-package, a shop order, a part number, a purchase order or any other definable task/activity at whatever level control is normal for program management within the company.

**Work Package Budgets.** Resources which are formally assigned by the contractor to accomplish a work package, expressed in dollars, hours, standards or other definitive units.



## APPENDIX I

### GUIDELINES DISCUSSION AND EARNED VALUE MANAGEMENT SYSTEM EVALUATION GUIDE

**1.0 General Information.** The guidelines represent the EVMS requirements to be levied on contractors.

This section is intended to provide GUIDANCE and function as an aid in understanding and applying EVM methods.

The five sections of the guidelines (Organization, Planning, Scheduling and Budgeting, Accounting, Analysis and Management Reports, and Revisions and Data Maintenance) address basic management concepts. Management processes that include organizing, scheduling, work/budget authorization, etc., however, tend to cut across the five sections.

This section of the Guide facilitates a process approach. There are nine processes described below: Organizing, Scheduling, Work/Budget Authorization, Accounting, Indirect Management, Managerial Analysis, Change Incorporation, Material Management, and Subcontract Management. For example, the Guideline statements that relate to the organization process of an EVMS are grouped together. Note that some guidelines relating to multiple processes, such as guideline 9, the "element of cost" guideline, are repeated for each process where appropriate. A matrix showing the processes and guidelines interplay is provided in Figure 3-1 above. The processes used here are indicative of those in common use, but individual contractor systems may be structured differently and still meet the guidelines requirements.

**1.1 Organizing.** The organizing process is concerned principally with:

- a. ensuring that each part of the EVMS is properly established;
- b. defining the work required to be performed;
- c. assigning the tasks to organizations responsible for performing the work, including major subcontractors;
- d. facilitating the collection and development of information for management purposes; and
- e. identifying organizational resources that facilitate the preparation of accurate and timely estimates of program cost and schedule completion.

**1.1.1 Defining the Work.** The SOW for the program should reflect all work to be performed. The SOW communicates the work scope requirements for a program and should define the requirements to the fullest extent practicable. It is a basic element of control used in the processes of work assignment and establishment of program schedules and budgets.

A critical aspect is to establish organizational responsibility for segments of the work and to define in-house effort versus subcontracted effort. A product oriented WBS (WBS) based upon the guidance contained in MIL-HDBK-881 should be used to segregate the work scope requirements of the program into definable product elements and related services and data. The WBS established for the program should not be extended to unreasonably low levels, since this could affect management flexibility and cost to the program.

The WBS is a direct representation of the work scope defined in the program SOW and breaks down that work scope into appropriate elements for cost accounting and work authorization. It is a multi-level hierarchical breakdown that shows how program costs are summarized from the lower elements to the total program level.

The extent of detail (breakout and levels) in the WBS will be determined by program management needs, cost analysis requirements, and contractual agreements. As a program

progresses from one phase to another, it is a normal process to reassess the WBS. If program requirements change, the WBS will evolve with the program.

A contractor must prepare a WBS dictionary when a CWBS is specified in accordance with DI-MGMT-81334. The dictionary defines the work scope represented in each element of the WBS. This can be done by summary work scope descriptions or by references to the applicable sections of the SOW. The WBS dictionary does not replace the SOW, but should provide a logical cross-reference between it and the WBS.

Where an EVMS requirement is applied to subcontracted effort, the level of detail in a subcontract program SOW and the WBS is independent of the level of detail in the prime contract. It is also independent of the level of the prime contract WBS or program element into which it feeds. The sub-contract WBS should be dependent on the needs of program management and cost analysis requirements.

**1.1.2 Assigning Organizational Responsibility.** It is important for the organization to be defined at the onset of the program so that work assignments are made and responsibilities are clear. A company will organize as it needs to for the optimal management of its business. This includes decisions such as the use of work teams or functional organizations and staffing by direct (projectized) or matrix management. This process includes identification and coordination of subcontracted work as well as internal efforts. A program organization is dynamic and may change as the program evolves.

The Organizational Breakdown Structure (OBS) reflects the way the program is organized. To assign work responsibility to appropriate organizational elements, any WBS and organizational structure must be interrelated with each other; that is, organizational responsibility must be established for identified units of work. The assignment of lower level work segments to responsible lower level managers provides a key control point for management purposes and cost collection. This is called the control account (CA). A CA thus represents a defined work scope (with the associated charge number or numbers) given to a single organizational unit (and single manager or team leader) for work performance.

When effort is to be subcontracted out, the applicable subcontractor is identified and related to, or integrated with, the appropriate WBS element(s) and/or organization charged with acquiring the subcontracted item.

**1.1.3 Ensure Management Subsystems Integration.** The CA is the main action point for planning and control of effort. All aspects of the system come together at this point including budgets, schedules, work assignments, cost collection, progress assessment, problem identification, and corrective action. Most management action taken occurs as a result of significant problems identified at this level.

When CAs are assigned in this manner, there may be multiple accounts within a WBS element depending on the number of organizations authorized to do work within the scope of that WBS element. If an organization is also assigned work under another WBS element, then that is another CA.

The CA is where program, cost, schedule, and work scope requirements are integrated, planned, and managed. Resource planning through integration of schedule and budget objectives, and performance measurement will be accomplished within the CAs.

The company will determine the organizational level(s) at which to establish CAs. The CA levels should be determined by the scope of the management tasks. The proper levels should not simply be an arbitrary determination or the result of one "across-the-board" level for CAs. CAs are usually located at levels consistent with the program's method of management. CA data is then collected and summarized for higher levels of visibility of program plans and performance.



Since the accounts were defined by integration of the organization and the WBS, program data can be summarized by either path.

**1.1.4 Organize for Effective Performance Measurement.** The CA in an EVMS is the lowest level in the structure at which the comparison of actual costs to planned budgets and earned value are required. The cost collection point must be at a level which will identify the cost elements and factors contributing to cost and/or schedule variances. Managerial authority and responsibility for corrective action should exist at the CA level making it the key management control point in the system.

The purpose of defining CAs is to break the program, the total job at hand, into manageable subdivisions. The size and duration of a CA depends on what is necessary and reasonable for program planning and control. One normal guideline is that a CA should not span multiple WBS elements.

A CA must be assigned to a single manager or team leader who has the responsibility and authority for management of the account. A control account manager (CAM) may have responsibility and authority for a number of accounts on one or more programs depending on the organization within a company.

**1.1.5 Authorize Responsible Organizations to Proceed with Work.** Before work can proceed, scope and budget must be authorized to the responsible organizations. The contractor's PM is given an internal authorization to proceed with contract work. Budgets and work scope then are divided among the program's organizations via formal work authorizations that communicate work assignments. All authorized work must be associated with a corresponding budget. This provides a documented trail of work authorization from the program office that clearly assigns program work requirements to the responsible organizations.

The process of work authorization, the approvals necessary, and the form will vary based on individual company policies and procedures. Work authorizations do not need to duplicate the SOW nor WBS dictionary, and can refer to that document for work scope definition. Work authorizations should describe the work to be performed in as much detail as needed for the CAM to understand the work to be accomplished. The company will decide on the flow of the work authorizations and the approvals that are needed. The authorizations may be communicated electronically or on paper. Work authorizations should be issued, before work is due to begin, for improved control and advance planning.

Normal business practices provide for documentation of job or task requirements at the performing organization level. This documentation should suffice for management needs. The work authorization process should make use of and avoid duplication of working level job documentation.

**1.1.6 Assignment of Performing Organizations.** Work packages (WPs) are natural subdivisions of CAs and constitute the basic building blocks used in planning, controlling, and measuring program performance. A WP is simply a low-level task, a grouping of similar tasks or a job assignment.

"Work Package" is a generic term that translates into different terms in different companies and functions. It can be a design job, a tool design package, a build-to-package, a shop order, a fabricated part, a purchase order or any other definable task at whatever level of control is normal for program management within the company. It describes the work managed by a specific performing organization and serves as a vehicle for monitoring and reporting work progress.

When CAs are further allocated into WPs, earned value is normally determined at the WP level. Effective control and completion of the work requires that each WP be assigned to only one

performing organization. Establishing and maintaining control at the CA level permits flexibility in the management of resources at the lower detail levels through WP replanning.

The number, content, size, and duration of WPs needed in a CA will vary subject to internal management needs and company policies along with the size and complexity of the program. In some cases, a CA may not need to break the assigned work into multiple WPs for effective planning and control.

The concept of WPs does not impose a new or unusual level of planning and control, as the WPs should represent working level jobs, tasks or processes that are natural to company operations.

EVM using standard hour methods is commonly used in manufacturing organizations. Measure manufacturing work is effort that is scheduled and tracked on the basis of physical accomplishment. In manufacturing, the techniques applied include the usage of learning curves and realization factors for planning and performance measurement. Usage of planned and sold/credited (i.e., earned) standards is a proven earned value methodology with natural WPs.

When effort at the CA level cannot be adequately defined into WPs, the contractor may retain budget and scope in one or more planning packages (PPs). PPs must be assigned to an organization for maintenance and for detail planning into WPs at the earliest possible time.

The PP budget is time-phased in accordance with known schedule requirements (due dates) for resource planning and the plans are refined as detail requirements become clearer and the time to begin work draws nearer. A company may elect to break the work assigned to a CA into smaller groupings of tasks, i.e., multiple PPs, for internal planning and control reasons.

There is no standard advance planning look-ahead period (i.e., a planning “horizon” or “window”) for conversion of PPs into WPs that is appropriate for all programs or conditions. Each company must determine its own policies in this regard.

**1.1.7 Establish Organizational Responsibility for Resource Allocations.** Organizations engaged in the performance of contract effort must periodically perform a comprehensive estimate of costs for the effort remaining. Program Management must periodically assess the sufficiency of resources versus the amount of work remaining. Responsibility for resource assignment to support program objectives must be clearly identified.

**1.2 Scheduling.** The scheduling process defines the schedule hierarchy that must be established to ensure proper, effective planning and statusing of all effort on the program.

**1.2.1 Structuring Schedules for Program Management.** Successful management requires the integration of the technical, schedule, and cost aspects of the program. Schedules that result from this integration show the planned time required to accomplish the technical scope of the contract. When programs experience problems in technical performance, either schedule delays, cost problems or both may follow. An adequate scheduling system will facilitate the depiction of the plan to accomplish the technical scope, the actual technical progress against that plan, and estimates of the time required to complete the remaining technical scope. The schedule baseline, progress, and estimated time to complete all should readily integrate with the financial depiction (budgets, earned value, and estimated cost to complete (CTC)) of the technical scope.

**1.2.2 Preparing the Program Schedule.** The program schedule is the time-oriented plan for accomplishment of work scope requirements on a program. Schedule planning and control, along with work scope definition, are necessary prerequisites for basic program management and effective cost control. The scheduling process begins during original program definition and overall schedule plans are typically established during the preplanning for a program.

Supporting plans and detail schedules are subsequently developed, maintained, and statused as necessary during the performance phase of the program. The scheduling process must support integration of the cost and schedule objectives of the program to provide for resource planning, performance measurement, and other program management requirements.

Network schedules are the basis for sound schedule management. Network schedules provide the capability to do analysis of critical path, analysis of constraints, sequence and time management problems.

**1.2.3 Scheduling System Relationships.** The scheduling system should contain a master schedule and related subordinate schedules which provide a logical sequence from the detail to the summary level. Intermediate schedules should be established if needed to provide a logical sequence from the detail level schedules to the master program schedule. The scheduling system must also provide for the identification of interdependencies between organizations and/or WBS elements at the level appropriate for efficient program management.

A master schedule is the top-level schedule for accomplishment of program objectives. The master schedule should include the key program and contractual requirements. Beyond this, the level of detail in the master schedule depends on program management needs and company policies.

Master schedule requirements must be extended as necessary for a company to effectively plan and manage. Lower level schedules may be maintained as separate entities or integrated with the master schedule in a single module. The basic principle is that all lower level schedules must support the master schedule requirements and provide for program interdependencies as necessary.

Subcontract and critical procurement schedule requirements should be fully integrated into the overall program schedule. It is important to plan and track all critical schedule requirements that constrain the successful conclusion of procurement actions.

**1.2.4 Incorporate Meaningful Progress Indicators.** The scheduling system should cover all specified work and incorporate program milestones that are meaningful in terms of the technical requirements of the contract. It should provide schedules such that actual progress can be related to the plan and contain forecasts of expected future progress. Such schedules should identify key milestones and activities which recognize significant constraints and relationships. A key feature of the scheduling system is that it establishes and maintains the relationship between technical achievement and progress status.

**1.2.5 Evaluate Deviations from the Plan.** Scheduling should interface with other elements of the EVMS to the extent necessary for measurement and evaluation of program status. The scheduling system should provide current status and forecasts of completion dates for all authorized work. The summary and detailed schedules should enable a comparison of planned and actual status of program accomplishment based on milestones or other indicators used for control purposes.

**1.3 Work/Budget Authorization.** This process addresses the requirements for the program organization to integrate budget and work planning requirements with the program schedules to ensure completion of contractual efforts.

#### **1.3.1 The Performance Measurement Baseline (PMB).**

**1.3.1.1 Baseline Establishment.** The assignment of budgets to scheduled segments of work produces a plan against which actual performance can be compared. This is called the PMB. The establishment, maintenance, and use of the PMB are indispensable to effective performance measurement. The PMB should be in place as early as possible after authorization to proceed

(ATP). The relationship of individual work tasks with the time-phased resources necessary to accomplish them is established at the CA level.

When practicable, all CAs should be planned, at least at a summary level, to the end of the contract. Any CAs that cannot be established in the initial planning effort should have the critical defining event(s) necessary for planning identified and made an item of continuing management interest.

The PMB is the summation of the time-phased budgets for all of the CAs and summary level planning packages (SLPP) plus applicable indirect budgets and any Undistributed Budget (UB). Management Reserve (MR) is not included in the PMB, as it has not been allocated for specific work scope.

The PMB is a working management tool. It is a representation of current program plans that might change as program plans are refined and revised. Proper maintenance of the baseline will prevent performance measurement against an invalid plan.

**1.3.1.2 Summary Level Planning Packages (SLPP).** When it is clearly impractical to plan authorized work in CAs, budget and work should be identified to higher WBS or organizational levels for subdivision into CAs at the earliest opportunity. The budget for this effort must be identified specifically to the work for which it is intended, be time-phased, have its value periodically assessed, and have controls established to ensure this budget is not used in performance of other work.

A SLPP may be used to establish a high level holding account for budget that is identified to some work scope, but which is not yet allocated to responsible CAs. The SLPP budget must be allocated to specific CAs before the work is scheduled to start or actually begins. A basic difference compared to MR or UB is that the SLPP budget is identified to specific work scope elements and is time-phased for interim resource planning.

The maintenance of realistic budgets, directly tied to an established scope of work, is essential for each organization responsible for performing program effort. Eventually, all the work will be planned by specific organizational elements to the CA level. Planning horizons can be used to establish reasonable CA level assignments of work and budget. Summary level planning is not a substitute for early and definitive detail planning.

**1.3.1.3 Authorized, Unpriced Effort.** If a customer authorizes additional work and the value of the added work is still to be negotiated, the company may increase the program budget as needed for the newly authorized work. For authorized, unpriced work, the contractor should plan and budget near-term effort in CAs, and may leave the remaining effort and budget planned in SLPPs or maintained in UB during the period of negotiation. The budget applied to future work may be adjusted when the authorized change is finalized. After definitization, the remaining effort will be planned and budgeted within CAs as soon as practical.

**1.3.2 Baselines in Excess of Contract Value.** During the life of a program, situations may arise whereby available budgets for the remaining work are insufficient to ensure valid performance measurement. The need for an Over-target Baseline (OTB) could result from a major event or program review. Under these circumstances, it may be desirable for the total budget allocated to work to exceed the Contract Budget Base (CBB). The resulting value is referred to as an OTB. It must be understood that this value is strictly for management reporting purposes only, and does not constitute a contractual change in any way.

Establishment of an OTB may entail replanning future work, replanning in-process work, and/or adjusting variances (cost, schedule or both). This allows the program to increase the amount of budget for the remaining work to a more realistic amount to adequately provide for reasonable budget objectives, work control, and performance measurement.

A thorough analysis of contract status is necessary before the implementation of an OTB. The contractor should perform a detailed estimate of all costs necessary to complete the remaining effort. If the difference between the estimated CTC and the remaining budget is significant, the contractor will notify the appropriate parties of the need to increase the remaining budgets.

It is imperative that the contractor consult with the Government PM prior to implementing the OTB. This consultation should include a discussion regarding program cost, schedule, funding and technical implications expected as a result of implementing the proposed OTB. When both PMs are satisfied that the new baseline represents a reasonable plan for completing the contract, the new baseline becomes the basis for future performance measurement.

In implementing an OTB, the changes to baseline budgets must be fully documented and traceable. Existing cost and schedule variances should not be routinely or frequently adjusted or eliminated in connection with baseline changes. If variances are adjusted, their cumulative values before adjustment will be retained to ensure traceability. Establishment of MR within the OTB is acceptable.

OTBs or changes to OTBs should be limited to situations where needed to improve the quality of future cost and schedule performance management. If multiple OTBs are necessary on a program, the frequency of implementation will normally be more than a year apart. The customer must be consulted in advance whenever an OTB is implemented on a Government contract.

**1.3.3 Authorizing Work and Budgets to the Responsible Organizations.** The process of budget allocation and resource planning depends on having definition of program work scope, schedules, and organization. These elements are integrated in the PMB. Concurrent with the baselining process, the work authorization system should define and identify the work to be done by responsible organizational elements.

Setting a budget for a program involves allocation of company resources to performing organizations for accomplishment of program objectives. A key attribute of an EVMS is that budget is provided for specific work scope and is only allocated for authorized efforts. Budget values, representing the time-phased valuation of the resources authorized to complete the assigned work, are also assigned to the responsible organizations.

Schedules and budgets should be established and approved for all authorized work at the level determined most appropriate by the contractor. MR may be withheld before the budget is distributed to lower accounts.

**1.3.4 Control Account Establishment.** A resource plan must be developed for every CA and SLPP. The resource plan is the time-phased budget that is developed in accordance with assigned work scope and schedule requirements (due dates).

Since CA budgets and schedules also establish the constraints required for baseline control, care should be exercised in the establishment of CA budgets to ensure a viable scope/effort correlation and prevent front-loading of the baseline. When establishing CAs, factors to consider should include:

- the natural flow of work at this management control point;
- significant contract events that will be supported by completion of the effort within the CA;
- the need to ensure objective measurement of progress; and
- the rate structures to be applied to the CA resources.

**1.3.5 Control Account Budgets.** Each CA is allocated a budget that reflects the resources necessary to complete the assigned effort. Budgets established at the CA level must be planned by element of cost.

- (1) Budgets may be stated either in dollars, hours, or other measurable units. When units other than dollars are used, the company will determine the appropriate point of responsibility in their control system for rate application for financial analysis and reporting.
- (2) It is necessary to use rates that will provide a valid PMB. When there are significant changes in the anticipated labor, overhead, or other rates, internal replanning of remaining portions of the PMB is desirable, but not mandatory.
  - (a) A company will apply the budget rates necessary for establishment of a valid PMB.
  - (b) Rate changes may be incorporated in the program budget as they occur, by replanning the remaining budget in the baseline or by use of MR.
  - (c) Usage of average rates for an extended period of time is not usually recommended as budgets in the beginning of the period will be overstated and later budgets will be understated.
  - (d) The rates used in determining budgets will also be used for computation of earned value data.
- (3) In general, the budget process should provide for the following:
  - (a) Direct budgets allocated to organizations performing the planned work;
  - (b) Indirect budgets allocated to specific organizations having responsibility and authority for controlling indirect costs; and
  - (c) Identification of any MR or UB.

#### **1.3.6 Distribute the control account effort into work packages and planning packages.**

Effort contained within a CA is usually distributed into WPs or PPs or both. "Work Package" is the generic term used to identify discrete tasks which have definable results. It may also be used for defined components of LOE or apportioned effort work. A WP has the following characteristics:

- (1) It represents units of work at levels where work is performed.
- (2) It is clearly distinguished from all other WPs.
- (3) It is assigned to a single organizational element.
- (4) It has scheduled start and completion dates and, as applicable, interim milestones which are representative of physical accomplishment.
- (5) It has a budget or assigned value expressed in terms of dollars, man-hours or other measurable units.
- (6) Its duration is limited to a relatively short span of time or it is subdivided by discrete value milestones to facilitate the objective measurement of work performed or it is LOE.
- (7) It is integrated with detailed engineering, manufacturing or other schedules.

WPs are single tasks assigned to a performing organization for completion. WP descriptions must clearly distinguish one WP effort from another. A key feature from the standpoint of evaluating accomplishment is the desirability of having discrete WPs that incorporate frequent, objective indicators of progress. WPs should be natural subdivisions of CA effort. Each WP should result in a definable end product or event. When WPs are relatively short, little or no assessment of work-in-process may be required. As WP length increases, work-in-process measurement may become more subjective, unless WPs are subdivided by objective indicators, such as, discrete milestones with pre-assigned budget values or completion percentages.

The resource plan for apportioned efforts will be in accordance with the plans of the base accounts. The resource plan for unmeasured or LOE efforts may be a simple time-phased budget for all current and future requirements.

Future resource requirements may be represented by a summary time-phased budget (i.e., a PP). Work for a given CA which cannot be planned in detail at the outset, should be divided into larger segments and placed into PPs within the CA. PPs are aggregates of future tasks and budgets, beyond the detail plan, which will be divided into WPs at the earliest practical point in time. Time-phased budgets assigned to PPs must be supported by a specified scope of work and this relationship must be maintained when detailed planning of the effort occurs.

**1.3.7 Verification of Control Account Budgets.** All CAs must contain a budget, schedule, and scope of work and should realistically represent the manner in which work is assigned and budgeted to the organizational units. In all cases, the value of the budget assigned to individual WPs and PPs within the CA must sum to the total value authorized for the CA.

**1.3.8 Planning and Control of Discrete Work Packaged Activities.** The determination of earned value will depend on the type of effort, whether it is discrete, apportioned or LOE.

**1.3.8.1 Earned Value Methodology for Discrete Effort.** There are a number of basic earned value methodologies applicable to discrete work packaged efforts (efforts with definable scope and objectives that can be scheduled and on which progress can be objectively measured). Three basic methodologies are: (a) valued milestones, (b) standard hours, and (c) only when these objective methods are not feasible, management assessments. The value and accuracy of these methodologies is enhanced by the use of short WPs.

There are many variations and combinations of these techniques. Also, quantitative formulae may be used to compute earned value for cases such as work in process or inventory materials. The valued milestone method involves the assignment of budget to specific work objectives (schedule milestones). That value is earned as the milestones are completed. It is important for the milestones to be natural and meaningful points of accomplishment.

The use of standard hours methodology (equivalent units is a similar process) is common in manufacturing accounts. Budget is time-phased in relation to the standard hour plan. Earned value is accrued in proportion to the standard hour status as earned standards are sold/credited in the shops.

Management assessment may be used to determine the percentage of work completed for a task or group of tasks only when an objective method to determine the percentage is not feasible. Earned value is then calculated by applying that percentage to the total budget for the work. Management assessment may include the use of metrics for work measurement.

The objective earned value methods (valued milestones or standard hours) are always preferred, but each method has its own merits and a company should use the most objective methods that best suit its management needs.

Only for very short WPs (i.e., those of two months duration or less), other earned value methods are acceptable, e.g., % complete, 0/100, 50/50. (In the 0/100 technique, 100% of the budget may be reported as earned when the WP is closed. In the 50/50 technique, 50% of the budget is earned when the WP is started, and the remaining 50% is earned when the WP is closed.)

**1.3.8.2. Tie Work Package Budgets to Information in Supporting Systems.** When progress will be measured through the use of a standards-based performance measurement system, a direct relationship between the standards planned and the budget for the associated effort must be established.

The contractor must establish a baseline plan for manufacturing work which includes time-phased budgets that are consistent with the schedules for the performance of the work. The performance measurement indicators (milestones, earned standards, scheduled output etc.) must be clearly identified and directly related to CAs. They must be scheduled in a sequence which supports the achievement of contractual objectives. These indicators must clearly represent the accomplishment of an identifiable quantity of work within the CA and be assigned a value reflecting the planned cost of that work. These values must summarize to or reconcile with the total budget for the CA.

**1.3.9 Planning and Control of Level-of-Effort Activities.** LOE is work scope of a general or supportive nature for which performance cannot be measured or is impractical to measure. Resource requirements are represented by a time-phased budget scheduled in accordance with the time the support will likely be needed. For discrete WPs accomplishment can be measured based on the completed pieces of work but LOE is "measured" through the passage of time. Since the earned value for LOE is equal to the budget for the same time period, the performance data provided is simply a comparison of budgeted to actual cost.

LOE activity should be separately identified from discrete work packaged effort to avoid distorting that which is measurable. Some general guidelines for LOE are:

- (1) The amount of LOE activity will vary among performing organizations, but it should be held to the lowest practical level.
- (2) LOE budgets should be separately substantiated and planned as direct labor, material/subcontract or other direct costs. LOE activity should be budgeted on a time-phased basis for control and reporting purposes.
- (3) When LOE and discrete effort are mixed within the same CA, the CAM must ensure visibility into the performance of the discrete effort.
- (4) LOE may be replanned if the work will not occur when planned or will slip past planned (not contract) milestones. This avoids artificial cost variances.

### **1.3.10 Establish and Track Management Reserve and Undistributed Budget.**

**1.3.10.1 Management Reserve.** In most programs, particularly developmental activities, there is considerable uncertainty regarding the timing or magnitude of future difficulties. A company may establish MR to be used in accordance with company policy. MR is held for growth within the currently authorized work scope, rate changes, and other program unknowns. MR is held for current and future needs, and must not be used to offset accumulated overruns.

The use of MR provides the PM with a capability to adjust for these uncertainties. Adequate identification and control of MR is necessary. MR budget and its use should always be accounted for at the total program level. Normally, it is retained and controlled at this level, although in some cases it might be distributed to and controlled at lower management levels. In any event, MR is maintained separately from UB. There is no such thing as "negative MR." MR is not a contingency which can be eliminated from contract price during subsequent negotiations or used to absorb the cost of contract changes. The contractor should not be required to use existing MR to provide budgets for authorized, but undefinitized, work or other modifications to authorized contractual efforts or as a source of funding for added work scope.

**1.3.10.2 Undistributed Budget.** Budgets applicable to contract effort which cannot be specifically identified to WBS or organizational elements in a timely manner, are referred to as UB. The establishment of UB may be necessary when program changes are authorized too late in an accounting month to be distributed in that month. The budget should be distributed to appropriate WBS or organizational elements and CAs as quickly as possible. For authorized work which has not been negotiated, the program may maintain budgets in the UB account until negotiations have been concluded, allocating budget only to that work which will start in the interim. After negotiations, the remaining budget should be allocated appropriately.

**1.3.11 Reconcile Budget Values to Contract Cost.** The program budget is maintained as a working management tool for the life of the program. After contract negotiations are completed, the total allocated budget (TAB) used to report program performance must always represent the CBB value (or OTB, if approved).

The initial program budget should be tied directly to the negotiated contract cost or to equivalent internal management goals when there is no contract (as in the case of a Government in-house activity performing the work). This is to force recognition of contractual requirements and to



preclude undisciplined changes to the PMB. TAB (the PMB plus MR) equals the authorized contract target cost plus the estimated cost of authorized but unpriced work, except in the case of an OTB (see paragraph I-3-3.b).

**1.3.12 Budget Apportioned Effort as it will be Allocated.** Apportioned effort is activity dependent on and related in direct proportion to the performance of other discrete effort. Factors established for the application of apportioned effort should be documented and applied in a formal, consistent manner. Apportioned effort should be limited to that which is genuinely related to discrete effort. The budget for the apportioned account will be time-phased in relation with the resource plans for the base account(s). Status and the taking of earned value are driven by the status on the base account(s). If the base account(s) are on schedule, the apportioned account will be on schedule and an appropriate amount of value will be earned.

**1.3.13 Earn Budget Values in the Same Manner the Budget was Established.** In order to perform effective analysis of variances, it is required that earned value be objectively assessed using the same basis upon which the budget was planned and actual costs accumulated. In addition, labor, overhead, and other rates used to calculate earned value must be the same as for the associated budget. The major difficulty in the determining of earned value is the evaluation of in-process work (WPs which have been started but have not been completed at the end of the accounting period). The discrete value milestones within WPs will significantly reduce subjective work-in-process evaluation. The technique used to assess earned value will largely depend on WP content, size, and duration.

**1.4 Accounting.** The accounting system structure is defined by the contractor's Cost Accounting Standards (CAS) Disclosure Statement. If a contractor is not required to submit a Cost Accounting Standards Disclosure Statement, the contractor's accounting system structure would be defined in its cost accounting policies and procedures. The intent of this discussion is to ensure there is a timely and accurate transfer of actual cost information from the accounting system into the EVMS.

**1.4.1 Establish an Accounting System Interface with the Earned Value Management System.** The EVMS is not an accounting system. While EVMS guidance may affect accounting procedures, it does so without compromising "accepted accounting practices." The EVMS will use actual cost data from the company accounting system as appropriate for accurate reporting of program costs and performance. The establishment of work orders and other aspects of the accounting process must be coordinated with the establishment of CAs and other aspects of the budgeting process so that direct comparison and analysis can be done.

The accounting system must be capable of accounting for all resource expenditures on an "applied" basis (i.e., on an "as-used" or "as-consumed" basis). This requirement creates few difficulties in the categories of direct labor (where time cards or other time measurement devices are used) or other direct charges (where services are rendered on some type of dollarized per-unit basis).

Material costs are usually recorded on an as applied basis, but there may be exceptions. In the area of material accountability, there is considerable variation among the respective processes of accounting for material usage. Recognizing the absence of uniformity in material methodologies, the CAS provides relaxed interpretations as to what constitutes an "applied" basis of material accounting, as well as alternatives for acceptance on an "other-than-applied" basis.

**1.4.2 Ensure Accurate Summarization through the WBS.** Allowable costs collected within the CA by element of expense must summarize from the CA level through the WBS used to the top level without being allocated to two or more, higher level elements. A carefully developed WBS and a corresponding cost collection structure should prevent any single element's data from being summarized to multiple higher-level elements. This does not preclude the allocation of costs from a CA obtaining common items or services to the appropriate using CAs.

**1.4.3 Ensure Accurate Summarization through the OBS.** The same requirement for accurate cost summarization applies to the program organization as well. The integrity of the data summarization begins at the CA level through the program structure to the highest-level organizational element without costs being allocated to two or more higher-level elements. This does not preclude the allocation of costs from a CA obtaining common items or services to the appropriate using CAs. Again, a carefully developed program structure and cost collection structure will assure accurate data summarization for management use.

**1.4.4 Establish a Capability to Track Costs for Apportioned Effort.** The system should ensure that actual costs for effort identified as apportioned are collected properly so that valid comparisons to the budgets for the apportioned effort may be made.

**1.4.5 Unit/Lot Costs.** The contractor may be required to account for the production of material items in a manner that facilitates development of unit costs, equivalent unit costs or lot costs. This is normally a requirement of contracts where multiple units are being produced in a production or production-like environment.

There are acceptable alternatives to unit cost for specific circumstances unique to the production environment. When production effort occurs on an accelerated assembly line basis, it may not be practical to determine the cost of individual units. In such situations, it is sufficient to accumulate "lot" costs, where a lot is an aggregate of a specified and consistent number of units. In those situations where production line effort yields substantially comparable units for more than a single customer, it is also difficult to establish the cost of specific units. It is sufficient under these circumstances to establish "equivalent unit costs" based on the assumption that, all things being alike, on a "mature" production run each unit's cost is approximately equal to every other unit's cost.

**1.4.6 Use Accounting System Actuals for Variance Analysis.** It is essential that all actual costs used for variance analysis come directly from, or be reconcilable with, the accounting system. In some cases, it may be necessary to use "estimated actuals" to avoid artificial variances that might be created by the time lag of costs being recognized by the accounting system. Earned value for material will usually be credited in the same period that the costs are applied, but in situations where earned value is credited and the invoice has not been paid, the company may elect to use estimated costs on management reports and customer reports for performance measurement.

**1.4.7 Control Retroactive Changes to Actual Costs.** Retroactive adjustments to costs should only be made for routine accounting adjustments or for correction of errors. Any direct or indirect cost adjustments must be made in a timely manner in accordance with Generally Accepted Accounting Principles (GAAP).

**1.5. Indirect Management.** This discussion pulls together those requirements that apply to the contractor's process of establishing, implementing, controlling and evaluating indirect budgets and costs that are incurred and allocated to the individual programs. Since indirect costs are normally handled in organizations that are not program peculiar, there should be some method for assigning the appropriate values for indirect budgets and actuals to all affected programs.

**1.5.1 Assign Managerial Responsibility for Indirect Cost.** The contractor should establish an indirect budgeting process which includes the formal assignment of duties and limits of responsibility, a description of the indirect system, and policies and procedures applicable to the establishment and control of indirect costs. Assignment and control of the indirect resources must be clearly defined and should be commensurate with the authority to approve or to avoid the expenditure of resources.

**1.5.2 Include Indirect Budgets in the PMB.** The PMB should include indirect budgets. Budgets should be included in the time-phased CA budgets, SLPP budgets or UB. Irrespective of the level at which indirect budgets are allocated or assigned to the program, average indirect rates for the life of the contract or CA, may cause too much distortion in cost performance.

**1.5.3 Correlate Indirect Budgets with Program Activities.** Realistic time-phased budgets and forecasts for indirect costs must be established by organization. The contractor should apply the most appropriate indirect rates so that a valid PMB can be established. Indirect budgets should be reviewed at least annually or when major changes are identified in factors affecting indirect costs.

**1.5.4 Collect Actual Indirect Costs for Allocation to Individual Contracts.** Overhead costs represent expenses that benefit more than a single contract. The accounting process should record all allocable indirect costs consistent with the provisions of the contractor's disclosure statement. The contractor's procedures and/or EVMS description should specify the level at which indirect cost information will be allocated to individual contracts.

**1.5.5 Analyze Indirect Variances.** The contractor should establish controls to ensure actual indirect costs are compared to indirect budgets and this information should be shared with all affected programs. Specific control procedures should be implemented to ensure variances are identified, reported, and addressed by the appropriate level of management. Such controls increase the likelihood that potentially significant variances are communicated and considered in the development of the program Estimate At Completion (EAC).

**1.5.6 Ensure Most Accurate Rates are Used to Program Indirect Costs.** The most current information should be used in preparing indirect rates, including historic experience, contemplated management improvements, projected economic escalation, and anticipated business volume. The use of these rates to generate indirect cost estimates will ensure a valid projection of program costs. Comparing indirect budgets to estimates of final indirect costs will reveal where significant differences occur. These variances must be analyzed to determine the causes and appropriate corrective actions.

**1.6. Managerial Analysis.** Managerial analysis is the evaluation and feedback loop of the EVMS. Earned value is a direct measurement of the quantity of work accomplished. The quality and technical content of work accomplished is controlled by other processes. Earned value is a value-added metric that is computed on the basis of the resources consumed compared to the accomplished work scope.

Management actions are determined, based on lower level analysis of problems, corrective actions are implemented, and their effect on cost and schedule performance is projected. Earned value analysis will evaluate program performance and identify problems for more effective management actions. Earned value analysis segregates schedule and cost problems for early and improved visibility of program performance.

**1.6.1 Analyze Significant Variances at the Control Account Level.** Analysis of deviations from planned activities provides management with visibility into needed actions to either return the program to plan or compensate for these deviations in cost, schedule or technical areas.

**1.6.1.1 Significant Variances.** Reasonable selection criteria should be established to ensure proper analysis of all significant problems and not cause an excessive burden on the CA and mid-level managers. Use of meeting notes, minutes or other material generated as normal function of the management process supports this analysis. The selection criteria should ensure all significant variances are analyzed and any external reporting requirements are supported. The frequency and style of reports for internal management is a company option. Unless otherwise specified in contracts, standardized reports and formats may be used for customer reports on subcontracts or Government contracts per mutual agreement.

**1.6.1.2 Schedule Variance (SV).** Comparing the earned budget (the value of work accomplished) during a given period of time to the value of work scheduled (planned budget) during the same period of time provides a valuable indication of schedule status in terms of dollars worth of work accomplished. It represents the quantity, i.e., the value, of the work that is ahead of or behind schedule. In essence, it is an “accomplishment” variance.

This variance might not, however, clearly indicate whether or not scheduled milestones are being met since some work may have been performed out of sequence or ahead of schedule. SV does not indicate whether a completed activity is a critical event or if delays in an activity's completion will affect the completion date of the contract. A formal time-phased scheduling system, therefore, must provide the means of determining the status of specific activities, milestones, and critical events. The specific activities and events that are contributing to the SV can be identified in the time-based program schedules.

Program schedules will involve time-oriented listing or graphic representations of the work to be done on the program. The program schedule activities and events are monitored for management information. Each process (SV analysis and program schedule status) provides useful and valuable information that aids in comprehending program conditions.

The SV metric provides early insight into detail schedule conditions and overall schedule performance and should be used in conjunction with milestone status reports, critical path data, and other schedule status information used by the company. The SV metric considers both ahead of schedule and behind schedule data in the computation of an overall schedule position.

Other techniques, such as critical path analysis, may be better indicators of long-range time projections. However, a trend analysis of the changes in the SV metric can provide a valid and useful indication of current performance and near term projections, as well as early identification of incipient cost problems.

The schedule status of an apportioned account will mirror the status of the base account and the schedule variance analysis for the base accounts will apply to the apportioned accounts as well.

**1.6.1.3 Cost Variance (CV).** Cost performance is determined by comparing the actual cost of the work accomplished to the earned value for the same work scope, i.e., the budgeted cost of the work accomplished. The resultant metric is the CV. The CV is a true measure of cost performance as it compares the actual cost incurred to the value of work accomplished. It eliminates the distortions that are inherently present in a simple comparison of actual costs to a total budget, when work is being performed ahead of or behind schedule.

Analysis of this difference reveals the factors contributing to the variances. Examples include poor initial estimate for the task, technical difficulties that required additional resources, the cost of labor or materials different than planned, differences between planned and actual rates, selected earned value methodology incorrect or inadequate, and personnel efficiency different than planned. (Rate analysis and analysis of prime costs, i.e., labor hours, may be segregated to isolate rate changes and efficiency factors.) The CV of an apportioned account is not driven by the base account and reflects the cost of resources spent for the value earned in the affected apportioned account.

**1.6.1.4 Variance at Completion (VAC).** Comparing the total budget with the EAC at the CA level provides a variance expected at the completion of the CA. CAMs need to be alert to circumstances which will affect the EAC and therefore, the VAC. Managerial authority and responsibility for corrective action should exist at this level.

**1.6.1.5 Required Analysis.** Analysis of these variances is required at the CA level. Analysis and control begins at the lowest practical level; however, for most program management purposes, the CAs will be the natural focal points for analysis and exception reporting.

Budgeting, measuring performance, and collecting costs by element of cost facilitates determining and reporting the reasons for significant variances in both the progress reviews and in the narrative portion of the external performance measurement report. While performance analysis necessarily involves examination of what has occurred, the focus should be on the control of current actions and assessment of future plans. The assessment of future plans should project when the remedial actions will be completed and its impact on schedule and EAC.

**1.6.2 Technical Achievement.** Unfavorable cost or schedule conditions are usually caused by technical difficulties. Quantitative information as to technical status is desirable and should be supplemented by narrative reports. As work progresses, the adequacy and quality of the work performed should be determined by making inspections, tests or other types of technical measurements. If the results are satisfactory and no corrective action is required, the work proceeds. If, on the other hand, deficiencies are found, consider alternatives for corrective action (for example, redesign, scrap and remake, rework, etc.) should be considered.

When considering these alternatives, the impact on cost and schedule must be weighed in addition to the technical considerations. After an alternative is selected, it may become necessary to plan the additional work in terms of new WPs or additions to existing unopened WPs and to change the schedules affected. In some cases the PM may choose to provide additional budget to the responsible organization. Thus, there is a close relationship between technical achievement and its impact on cost and schedule.

**1.6.3 Summarize Performance Data for Management Evaluation.** Performance measurement information should be summarized directly from the appropriate level (CA or below) to provide both program status and organizational performance at all levels of management. This process supports an overall capability for managers to analyze available information and identify problem areas in sufficient time to take action.

Because favorable variances in some areas are offset by unfavorable variances in other areas, higher-level managers will normally see only the most significant variances. The accumulation of many small variances which may add up to a large overall cost problem not attributable to any single major difficulty, will also be evident.

**1.6.4 Take Effective Management Action as a Result of Analysis.** Performance measurement is only one of the management tools available to PMs. Many major problems are disclosed through methods other than monthly performance measurement reports. The program's internal reports and the reports forwarded to their customer, however, should indicate the overall cost and schedule impact of such problems on the program. Because of this, the data produced by the EVMS must be available to managers on a timely basis and must be of sufficient quality to ensure that effective management decisions can be made as a result of its analysis. Procedures should exist to monitor decisions to the point of resolution.

**1.6.5 Generate Periodic Estimates At Completion.** A company should periodically reassess the remaining requirements on a program and maintain a most likely estimate of the CTC the program objectives. This estimate is added to the costs incurred to date to determine the total EAC. The process of reassessment should focus on the CAs, but a company will apply its own methodology to ensure that all resource requirements are considered.

A comprehensive EAC should be periodically developed at the CA level using all available information to arrive at the best possible estimate. This is done by:

- evaluating the efficiency achieved by performing organizations for completed work and comparing it to remaining budgets;
- establishing a schedule forecast that reflects the expected time-frame for completing the remaining work;
- considering all remaining risk areas on the program versus cost avoidance possibilities;
- ensuring the most current direct and indirect rate structure is used to value the projected resources; and
- applying this analysis to future efforts to derive the most accurate estimate.

The EAC should be the most likely estimate of the total costs for all authorized program efforts and should be time-phased in accordance with the expected completion dates on program schedules. The basis for the EAC and the reasons for changes from the last estimate should be identified.

Comparisons of this estimate to budgets for the associated effort must be made frequently enough

for management to ensure program performance and resource availability will not be adversely impacted. Monthly maintenance of the CA level EAC by the CAM ensures that the EAC continuously reflects a valid projection of program costs.

The schedule for establishment and maintenance of EAC data depends on program management needs and overall company or corporate financial review requirements. A company should conduct periodic (at least annual) comprehensive EAC reassessments. Alternatively, a company should establish an on-going process of EAC review and maintenance. In either case, significant EAC changes should be incorporated whenever they are identified.

**1.7 Change Incorporation.** Changes in major programs are inevitable. This discussion addresses the controlled process whereby programs incorporate formal changes, conduct internal replanning, and adjust past, present and future information to accommodate changes. The keys are timeliness and control. The budget will change as contract changes are authorized and incorporated or as internal replanning actions are taken. Rate changes and economic price adjustments may also be made as appropriate.

Revisions to program plans must be carefully controlled. The PMB should reflect the current program management plan for accomplishment of program objectives. It must be up to date and should include all authorized changes. It is equally important that unauthorized changes are not introduced. Incorporating changes should not precipitate the elimination of existing cost and schedule variances (sometimes referred to as “single point adjustments”). If the maintenance of baseline plans is compromised, the information on management reports will be degraded.

**1.7.1 Customer-Directed Changes.** Customer-directed changes to the program can impact virtually all aspects of the internal planning and control system, such as organization structures, work authorizations, budgets, schedules, and EACs. The incorporation of authorized changes should be made in a timely manner and strictly controlled. This will ensure the PMB can be accurately maintained.

**1.7.2 Provide Traceability to Previous Budgets.** The original budget established for the program should constitute a traceable basis against which program growth can be measured. The starting point or base on which these original budgets are built is the program target cost. This value increases or decreases only as a result of authorized changes. For definitized changes, the program target cost changes by the negotiated amount. For authorized work that has not been negotiated, the program target cost increases by the amount of cost estimated for that effort. Where a specified Not-to-Exceed (NTE) amount has been established, the program target cost will only increase by this amount unless both parties mutually agree to a different amount for performance measurement purposes. After negotiations, the program target cost is adjusted to reflect the negotiation results. Adequate records of all changes should be maintained

to provide the basis for reconciliation back to the original budgets assigned during the baselining process.

**1.7.3 Control Internal Changes to the PMB.** Future plans may significantly vary from the original baseline, and the PM may choose to realign scope, schedule or budget. Some examples of when it may be appropriate to do internal replanning (i.e., within the program target cost or approved TAB) include:

- changes resulting from a Preliminary Design Review (PDR) or a Critical Design Review (CDR) that modify future requirements;
- a major shift in the resource profile to accomplish the remaining effort;
- funding restrictions or modifications that affect future resource availability;
- rate changes that are significant enough to warrant replanning.

Internal replanning is intended for in-scope changes to future budgets. The objective of internal replanning is to reflect a revised program plan. Changes to near term effort (scheduled to start in the next accounting period) must be minimized.

Changes in the funding projections for a program may affect both the schedule and the cost for a program. The movement of budget to meet a new funding profile requires a reassessment of the schedule for the associated work. There may also be cost impact due to rate differences in the affected time periods.

**1.7.4 Control Account Replanning.** Internal adjustments to plans for future actions is a normal management process as things happen and situations change. In this internal replanning, it is important to ensure that overall program scope, cost, and schedule objectives are supported and retroactive changes are properly controlled to maintain the integrity of program performance data.

Replanning of unopened WPs within CAs is sometimes necessary to compensate for internal conditions which affect the planning and scheduling of remaining work. Such replanning should be accomplished within the remaining constraints of the previously established CA schedule and budget. When more extensive replanning of future work is necessary and the total CA budget must be changed, MR may be used to increase or decrease the CA budgets. If replanning requires that work and associated budget be transferred between CAs, this transfer must also be controlled.

Replanning actions designed to reduce costs, improve or reflect improved efficiency of operations or otherwise enhance the completion of the program, are encouraged. Internal replanning may involve changes to work-in-process. The replanning of open WPs or LOE should be accomplished in such a way to maintain valid performance measurement information while minimizing the administrative burden. Except for correction of errors and accounting adjustments, no retroactive changes will be made to budgets for completed work. Budgets which are assigned to work packages should not be changed once they are started/opened unless the scope of work is affected by contractual change, or other reasons agreed to by the contracting parties. Poor initial planning or significant underruns is not a valid reason to change open (in-process) work packages.

Normally, a performing organization should not have an internal operating plan that is different from the baseline plan for that work. On occasion, an organization may find it advantageous to have an internal recovery plan when there are problems. A recovery plan will not replace the baseline as a basis for performance measurement.

**1.7.5 Manufacturing Work Package Changes.** A certain amount of rescheduling of open manufacturing WPs is appropriate and acceptable providing procedures exist which prevent the inadvertent invalidation of baseline schedules and budgets. The substance of such procedures should be to limit the range of rescheduling so as to maintain consistency with key production

schedule dates. Key production schedule dates define the required completion dates for key elements of the manufacturing plan and are normally found on internal production schedules.

**1.7.6 Correlate Internal Program Cost with the Contract Budget Base.** The CBB, established based on the agreed to value of authorized work, must be strictly controlled in order to maintain a valid basis for program performance. Changes to the CBB may only be made as a result of contractual changes. The CBB should not be increased when a contract change (or portion thereof) is to provide funds to cover valid CVs that have occurred. Procedures should ensure controls are in place to prevent inadvertent implementation of a baseline in excess of contract value.

**1.7.7 Maintain Change Traceability.** To maintain the validity of the PMB, discipline is mandatory throughout the organization, particularly in regard to budgetary control. Internal procedures should clearly delineate acceptable and unacceptable budget practices. These should include:

- Budgets are assigned to specific segments of work.
- Work responsibility should not be transferred without transferring the associated budget.
- A budget assigned to a future specific task should not be used to perform another task.
- When MR is used, records should clearly indicate when and where it is applied.
- When UBs exist, records should clearly identify their amount, purpose, and to which efforts budgets are issued.
- Budgets that are assigned to WPs should not be changed once effort is started unless the scope of work is affected by contractual change or program internal adjustments that enhance management of the effort.
- Retroactive changes including those in current period to budgets or costs for completed work or to schedules are not made except for correction of errors, normal accounting adjustments, revisions to budgets to reflect the formal negotiated value of completed tasks, or to improve the integrity and accuracy of the baseline.

A company must be able to make routine accounting adjustments and correct data errors, but it should also control changes to prior and current period data to prevent inappropriate changes from being made in the PMB. Corrections may be made if wrong data is affecting the management value of the system, but management reports will also be compromised if current plans or program history (performance to date information) is constantly changing.

**1.8 Material Management.** The following discussion expands on the application of performance measurement to both development and production material.

**1.8.1 Establish Budgets for Material Items.** The CA budget should include all direct costs for the authorized work with separate identification of cost elements (labor, material, and other direct costs). Budgets should be based on defined/expected quantities of material items necessary to meet the requirements of the program. The bill of material (BOM) for a program is normally the basis for establishing material budgets.

**1.8.2 Establish Work Packages For Budgeted Material Items.** The establishment of material WPs for developmental material and production material can differ significantly. In a developmental effort, most material is consumed by the engineering organizations in the design and testing of potential hardware items. These WPs may be established within the same CA as the labor that will consume the material. PPs should be established for developmental type material items when design work has not progressed sufficiently to permit adequate definition of parts required. The budgets for these PPs should be substantiated and segregated in some manner in order to ensure that budget designated for material procurement is not inadvertently used for other requirements.



In a production environment, material WPs may be established in material only CAs. These accounts are summarized into the appropriate WBS and/or organizational elements related to the hardware items being produced. Flexibility should be allowed in the planning of production material WPs as long as the budgets accurately represent the manner in which material is planned to be received, accepted, issued to work-in-process or consumed. Planning of material budgets for both development and production should coincide with the occurrence of events that show physical progress.

**1.8.3 Account for Material Purchased for the Program.** Acceptable costing techniques should be used to fully account for all material purchased for the program. To ensure effective performance measurement of material takes place, the contractor's accounting system should have the following characteristics:

- An accurate cost accumulation system which assigns material cost to appropriate CAs in a manner consistent with the budget. Actual costs for material items should be reported in the same accounting period that earned value is taken for the material to permit accurate management analysis.
- Where actual costs are not available in a timely manner, assign estimated costs to the material item and make adjustments when actuals are recorded in the accounting system. This may be done outside of the accounting system as long as the program is able to reconcile this value to the accounting system actuals.
- Account for all material and purchased parts in a manner appropriate to their value and significance.

**1.8.4 Analyze Material Variances at the Appropriate Management Level.** Budgets should be scheduled in accordance with a program event and earned when the event occurs. To avoid distortion, actuals should be recorded when the budget is earned. Analysis of variances for material accounts should focus on significant concerns. This may include usage incurred above or below the normal or exact quantities plus normal attrition amounts, as well as variances in the expected price of the material.

- Material usage variance is an important cost factor on repetitive large volume, production-type jobs. Acceptable techniques for analyzing and determining current and projected usage variances provide continuing internal measurement when the value and nature of the material warrant. Material systems plan and track material usage. For most programs, purchasing of material in excess of BOM requirements is standard practice. Planning for material usage allowance to cover scrap, test rejections, unanticipated test quantities, and the like, is a practical necessity, and the program should have records of such provisions. The more uncertain the expected usage, the more important it is to have a good plan and to keep track of performance against it, particularly for program peculiar materials or materials which require long procurement lead-times. The identification of excess usage that is expected to continue for future units is key in validating program material quantities and requirements. Based on this analysis, appropriate action should be taken to ensure sufficient material is on hand/on order to complete contractual requirements.
- Material price variance is an essential element of material cost control. This can be determined early in the cycle of ordering materials, at which point the purchase order value of the materials can be compared with the amount budgeted for that material. Accumulation of these differences represent the total material price variance. When material prices vary from the amounts planned, the contractor should update the EAC as appropriate to show expected cost adjustments.

**1.8.5 Provide Valid Estimates Of Future Material Requirements.** The EAC process focuses on the CAM. Information relative to price and usage variances should be used to support an update to the EAC. This provides timely notification to management of expected/incurred price changes which may affect future costs on the current program as well as future procurements.

On production contracts, the evaluation of excess usage can lead to identification of increased material requirements necessary to maintain the production line at optimum capacity and to meet the contractual requirements.

**1.9 Subcontract Management.** A company will apply its own established process for management of subcontracts. Major or critical subcontractors, normally excluding those with a fixed price contract, should be required to comply either with the provisions of the industry standard or other appropriate requirements. Management system and reporting requirements should be consistent with program risk, size, complexity, and other factors (including contractual or Government requirements).

Major or critical subcontractors with a fixed price agreement should have minimum cost reporting obligations, but should be required to provide schedule and technical plans and progress reports as needed by the prime contractor for overall program management. Subcontractor data can be integrated with prime contractor data for total program performance analysis and reporting.

Management of effort assigned to another component within a corporation will be done in accordance with standard company policy. The other component may be treated as an in-house organization and the effort may be planned and tracked within the EVMS of the prime contractor. Alternatively, the work can be managed like a subcontract.

The following paragraphs expand on the application of performance measurement to subcontracted efforts. Only those aspects unique to managing subcontracts will be covered.

**1.9.1 Establish Subcontract Management Organizations.** When designating the internal organization responsible for managing subcontracted efforts, the prime contractor must assign a manager with sufficient authority and responsibility to be able to ensure the subcontractor will perform to the terms and conditions of the program. Whatever arrangement the prime contractor makes, the person(s) assigned should have all of the same responsibilities as other CAMs within the program organization.

**1.9.2 Schedules for the Authorized Subcontracted Effort.** One aspect of schedule integration that provides unique problems is the integration of subcontractor schedule information into the prime contract schedule. This integration should be accomplished in a manner that provides an accurate depiction of the impact of subcontractor performance on the program schedules.

**1.9.3 Budget for the Authorized Subcontracted Effort.** The identification of budgets for subcontracted items is a result of establishing the requirement for the item to be procured as a subcontract rather than purchased as a material item. This involves identification of the subcontractor, the establishment of an estimated value for the subcontract, and ultimately, negotiating the subcontract scope, schedule, and budget. During this process, the prime contractor establishes a baseline for the effort at the CA level. During negotiations, the baseline values will normally be based on the prime contractor's estimate for the work as opposed to the subcontractor's proposal values. Once negotiations are complete, budgets are normally adjusted to reflect the negotiated value of the subcontract. Any other value used must be supportable.

When a subcontractor is required to provide an external performance measurement report, subcontractor data will be provided to the prime contractor for performance measurement purposes. If a subcontractor is not required to provide earned value information to the prime, the prime contractor should establish procedures which provide schedule and technical plans and progress reports as needed for overall program management.

**1.9.4 Work Packages for Subcontracted Effort.** WPs may be established within subcontract CAs to provide for separation of subcontract activities for performance measurement purposes. The prime contractor must be able to support the values established within each WP using either

subcontractor supplied information or internal documentation. These WPs must be related to the plan established by the subcontractor to complete efforts on the subcontracted items.

**1.9.5 Collect and Report Actuals for Subcontracted Efforts.** The prime contractor's accounting systems should provide:

- accurate cost accumulation that assigns subcontract costs to appropriate CAs in a manner consistent with the budget. Actual costs for subcontract items should be reported in the same accounting period that earned value is taken.
- where actual costs are not available in a timely manner, assign estimates of the subcontract costs, which will be adjusted when actuals are recorded.
- the ability to account for all subcontracted items.

**1.9.6 Provide Effective Analysis of Subcontractor Performance.** Procedures established by the prime contractor for measuring the performance of the subcontractor must consider:

- the establishment of a process whereby the prime contractor evaluates the management processes established by the subcontractor to perform the cost, schedule and technical requirements of the subcontract when the ANSI/EIA 748 guidelines are flowed down.
- the requirement to review the subcontractor's performance report for accuracy and adequacy. This includes an independent analysis of the performance measurement information contained in the data formats of the report, an evaluation of the variance analysis information contained in the report, and an evaluation of MR usage, baseline changes and manpower changes.
- the capability to incorporate the subcontractor's management information, including analysis of significant variances, into the information submitted by the prime contractor to the customer.

The prime contractor is also responsible for conducting an IBR of the subcontractor's PMB and validating the subcontractor's compliance with the ANSI/EIA 748 guidelines if required.

**1.9.7 Generate EACs for Subcontracted Efforts.** The procedures relative to subcontract EACs should focus on two aspects:

- the requirement that the subcontractor will generate an EAC as necessary to support program requirements and reporting to the customer, and
- the responsibility of the prime contractor to evaluate the subcontractor's EAC for adequacy and accuracy, and if necessary, to revise the EAC before submittal to the customer.

## **EARNED VALUE MANAGEMENT SYSTEM EVALUATION GUIDE**

Within each group, the applicable guidelines are listed along with references to the guidelines discussion above. Management system characteristics expected in a good EVMS relative to each guideline are given, along with typical documents that support these characteristics.

### **ORGANIZING PROCESS GROUP**

Guideline 1. Define the authorized work elements for the program. A work breakdown structure (WBS), tailored for effective internal management control, is commonly used in this process. (See Guidelines Discussion; Paragraph 1.1.1).

1. A comprehensive Statement of Work (SOW) defining program work requirements.
2. Correlation between the SOW and the WBS assigning segments of work to appropriate WBS elements.
3. A WBS dictionary capturing this correlation.

NOTE: A supplier must prepare a WBS dictionary when a CWBS is specified in accordance with DI-MGMT-81334.

Documents: CWBS (and CWBS Dictionary, if applicable); Contract SOW; Work authorizations.

Guideline 2. Identify the program organizational structure including the major subcontractors responsible for accomplishing the authorized work, and define the organizational elements in which work will be planned and controlled. (See Guidelines Discussion; Paragraph 1.1.2).

1. Early identification of a program organization structured for efficient execution of the program work efforts.
2. Integration of the major subcontractors into the program structure.

Documents: CWBS (and CWBS Dictionary if applicable); contractor organization charts.

Guideline 3. Provide for the integration of the company's planning, scheduling, budgeting, work authorization and cost accumulation processes with each other, and as appropriate, the program work breakdown structure and the program organizational structure. (See Guidelines Discussion; Paragraph 1.1.3).

1. Integration of the various subsystems into an EVMS that provides timely and valid program information to management.
2. Establishment of CAs at the appropriate organizational level, optimized for efficient program management.

Documents: Internal performance measurement reports.

Guideline 5. Provide for integration of the program WBS and the program organizational structure in a manner that permits cost and schedule performance measurement by elements of either or both structures as needed. (See Guidelines Discussion Paragraph 1.1.4)

1. CAs defined in terms of organizational versus WBS responsibility and establishes manageable subdivisions of the program effort.
2. Earned value information provided at this level for effective resource planning. for data accumulation.

Documents: Internal performance measurement reports; manufacturing breakdown structure (if applicable); CWBS.

Guideline 9. Establish budgets for authorized work with identification of significant cost elements (labor, material, etc.) as needed for internal management and for control of subcontractors. (See Guidelines Discussion Paragraph 1.1.5).

1. Early authorization for program management to proceed with the effort and to commit company resources.
2. A process for establishing organizational authority to proceed with program effort through the expenditure of resources at the CA level.

Documents: Work authorization documents for organizational elements.

Guideline 10. To the extent it is practical to identify the authorized work in discrete WPs, establish budgets for this work in terms of dollars, hours or other measurable units. Where the entire CA is not subdivided into WPs, identify the far term effort in larger planning packages (PP) for budget and scheduling purposes. (See Guidelines Discussion Page 9, Paragraph 1.1.6)

1. WPs established for identified tasks and assigned to a contractor organization for performance.
2. Ideally, a single contractor organization (functional, matrix, IPT, etc.) is given responsibility for completion of identified WPs.

Documents: Cost account plans (CAPs).

Guideline 22. At least on a monthly basis, generate the following information at the CA and other levels as necessary for management control using actual cost data from, or reconcilable with, the accounting system:

1. Comparison of the amount of planned budget and the amount of budget earned for work accomplished. This comparison provides the schedule variance (SV).
2. Comparison of the amount of the budget earned with the actual (applied where appropriate) direct costs for the same work. This comparison provides the cost variance (CV).

Guideline 26. Implement managerial actions taken as the result of earned value information. (See Guidelines Discussion Paragraph 1.1.4)

1. Managers assigned responsibility for completing work segments given authority commensurate with that responsibility.
2. Managers given control of assigned resources (ability to prioritize work) necessary to ensure work completion and the implementation of any corrective actions and/or work-around plans.

Documents: Manager interview results.

Guideline 27. Develop revised estimates of cost at completion (CAC) based on performance to date, commitment values for material, and estimates of future conditions. Compare this information with the performance measurement baseline (PMB) to identify variances at completion (VAC) important to company management and any applicable customer reporting requirements including statements of funding requirements. (See Guidelines Discussion Paragraph 1.1.7)

1. Managers coordinating resource requirements (positive or negative) with the providing organization as a result of EAC updates

Documents: System description; EAC procedure; results of intermediate level manager interviews

#### SCHEDULING PROCESS GROUP

Guideline 6. Schedule the authorized work in a manner that describes the sequence of work and identifies significant task interdependencies required to meet the requirements of the program. (See Guidelines Discussion Paragraph 1.2.1)

1. The scheduling system containing a program master schedule reflecting contractual requirements, significant decision points, and key program milestones.

2. Subordinate schedules providing a logical link from the level where work is being performed to the program master schedule and provide for program interdependencies as necessary (vertical traceability).
3. The schedules providing for identification of product-oriented interdependencies supporting completion of contractual effort (horizontal traceability).

Documents: Schedule trace; program schedules

Guideline 7. Identify physical products, milestones, technical performance goals or other indicators that will be used to measure progress. (See Guidelines Discussion Paragraph 1.2.2)

1. Meaningful indicators used to measure actual work progress as the basis for higher level schedule status.

Documents: Schedule Trace; program schedules; manager interview results

Guideline 23. Identify, at least monthly, the significant differences between both planned and actual schedule performance and planned and actual cost performance, and provide the reasons for the variances in the detail needed by program management. (See Guidelines Discussion Paragraph 1.2.3c)

1. The specific activities and events that contribute to the SV being identified in program schedules.
2. The SV metric providing early insight into detail schedule conditions and overall schedule performance and being used in conjunction with milestone status reports, critical path data, and other schedule status information for program management.

Documents: Schedule trace; SV analysis documents

#### WORK/BUDGET AUTHORIZATION PROCESS GROUP

Guideline 8. Establish and maintain a time-phased budget baseline, at the CA level, against which program performance can be measured. Budget for far-term efforts may be held in higher level accounts until an appropriate time for allocation at the CA level. Initial budgets established for performance measurement will be based on either internal management goals or the external customer negotiated target cost including estimates for authorized but undefinitized work. On Government contracts, if an over target baseline is used for performance measurement reporting purposes, prior notification must be provided to the customer. (See Guidelines Discussion Paragraph 1.3.1)

1. The program baseline being the summation of the time-phased budgets for all of the CAs and summary level planning packages (SLPP) plus applicable indirect budgets and any undistributed budget (UB).
2. The PMB representing current program plans. Proper maintenance of the baseline preventing performance measurement against an outdated or unauthorized plan.
3. If for management reasons a program establishes a program budget that exceeds the program target cost, the customer is consulted prior to implementation of the change.

Documents: CAP; work authorizations; summary planning documentation; internal time-phased baseline documents

Guideline 9. Establish budgets for authorized work with identification of significant cost elements (labor, material, etc.) as needed for internal management and for control of subcontractors. (See Guidelines Discussion Paragraph 1.3.3)

1. A resource plan, the time-phased budget, developed at the CA level in accordance with assigned work scope and schedule requirements (due dates) and stated in terms of direct labor hours, and/or dollars or ODC.
2. Authorization to proceed with work correlated as closely as possible to the actual commencement of that effort.

Documents: CAPs; work/budget authorizations; program schedules

Guideline 10. To the extent it is practical to identify the authorized work in discrete WPs, establish budgets for this work in terms of dollars, hours or other measurable units. Where the entire CA is

not subdivided into WPs, identify the far term effort in larger PPs for budget and scheduling purposes. (See Guidelines Discussion Paragraphs 1.3.6, 1.3.8, and 1.3.9)

1. WPs made natural subdivisions of the CA and reflect the actual way in which the work will be performed.
2. Discrete WPs contain objective indicators/milestones to minimize subjectivity in progress assessment.
3. Within a CA, a PP is a holding account for budget for future work that it is not yet practical to plan at the WP level. The planning horizon for this effort being based on program management needs.
4. In manufacturing organizations, EVM using a standard hour method is commonly employed. Work is being scheduled and tracked on the basis of physical accomplishment. The techniques applied including the usage of learning curves and realization factors for planning and performance measurement.
5. Apportioned effort is work for which the planning and progress is tied to other discrete efforts. The budgets for the apportioned effort accounts are being time-phased in relation to the resource plans for the base account(s).
6. The relationship between the discrete effort and apportioned effort being consistent throughout the period of performance of the affected CAs.

Documents: CAPs, manager interview results, work authorization documents, and schedules; internal factory standards planning documents, internal BCWS reports.

Guideline 11. Provide that the sum of all WP budgets plus PP budgets within CA equals the CA budget. (See Guidelines Discussion Paragraph 1.3.7)

1. The sum of all WP budgets and PP budgets within a CA equal the total budget assigned to the CA.

Documents: Internal performance measurement documents; CAPs.

Guideline 12. Identify and control level of effort activity by time-phased budgets established for this purpose. Only that effort which is unmeasurable or for which measurement is impractical may be classified as level of effort. (See Guidelines Discussion Paragraph 1.3.9)

1. LOE is work scope of a general or supportive nature for which measurement of performance is impossible or impractical. There is no definable end-product.
2. Discrete effort and LOE are to be separately evaluated to ensure the integrity of performance measurement data.

Documents: Manager interview results, CAP.

Guideline 14. Identify MR and UB. (See Guidelines Discussion Paragraph 1.3.10)

1. MR is budget that is held for work scope growth, rate changes, and other program unknowns.
2. At the total contract level, a program should be able to account for all MR.
3. UB is budget that is associated with a defined scope of work not allocated either to CAs or SLPPs.
4. At the total contract level, a program would be able to account for all UB.

Documents: Budget records (including MR and UB records)

Guideline 15. Provide that the program target cost goal is reconciled with the sum of all internal program budgets and MRs. (See Guidelines Discussion Paragraph 1.3.11)

1. The initial program budget is normally tied directly to the negotiated contract cost or estimated negotiated cost. The program budget, at any level and for any organization or task, is to contain budget only for specific authorized work.
2. The PMB is the summation of the time-phased budgets for all of the CAs and SLPPs plus applicable indirect budgets and any UB. MR is not included in the PMB, as it has not been allocated to specific work scope.

Documents: Budget records, external reports, contractual instruments, internal performance measurement reports

Guideline 22 At least on a monthly basis, generate the following information at the CA and other levels as necessary for management control using actual cost data from, or reconcilable with, the accounting system:

1. Comparison of the amount of planned budget and the amount of budget earned for work accomplished. This comparison provides the SV.
2. Comparison of the amount of the budget earned with the actual (applied where appropriate) direct costs for the same work. This comparison provides the CV. (See Guidelines Discussion Paragraph 1.3.13)

Note: To ensure valid comparisons of scheduled effort and actual costs to earned value, it is important that an appropriate technique or indicator for assessing progress be established for each segment of work. Objective methods and indicators should be used where practicable.

Documents: CAPs

#### ACCOUNTING PROCESS GROUP

Guideline 16. Record direct costs in a manner consistent with the budgets in a formal system controlled by the general books of account. (See Guideline Discussion Paragraph 1.4.1 and 1.4.4)

1. The contractor's accounting system provides a basis for auditing records of all direct costs that can be charged to the contract.
2. The accounting system collects actual direct costs and assigns these costs to CAs on the same basis as budgets were established.

Documents: Generally Acceptable Accounting Procedures (GAAP), contractor's accounting manual, disclosure statement

Guideline 17. Summarize direct costs from CAs into the WBS without allocation of a single CA to two or more WBS elements. (See Guidelines Discussion Paragraph 1.4.2)

1. The established cost charging structure will ensure that actual costs are collected so that direct comparison with associated budgets can be made at the appropriate WBS level(s).

Documents: Internal performance measurement reports, CPR, CWBS

Guideline 18. Summarize direct costs from the CAs into the contractor's organizational elements without allocation of a single CA to two or more organizational elements. (See Guidelines Discussion Paragraph 1.4.3)

1. The established cost charging structure will ensure that actual costs are collected so that direct comparison with associated budgets can be made at the appropriate organizational level(s).

Documents: Internal performance measurement reports, OBS, external reports.

Guideline 20. Identify unit costs, equivalent units cost, or lot costs when needed. (See Guidelines Discussion Paragraph 1.4.5)

1. When required by the contract, the contractor's accounting system must be capable of accumulating actual cost by unit or lot, as appropriate. The contractor's system must be able to identify unit and lot costs in terms of labor, material, other direct charges, and indirect cost.
2. When required by the contract, the contractor's accounting system must also be capable of separating actual costs into recurring and non-recurring categories.

Documents: Charge number structure, contract data requirements, accounting manual

Guideline 22 At least on a monthly basis, generate the following information at the CA and other levels as necessary for management control using actual cost data from, or reconcilable with, the accounting system:

1. Comparison of the amount of planned budget and the amount of budget earned for work accomplished. This comparison provides the SV.



2. Comparison of the amount of the budget earned with the actual (applied where appropriate) direct costs for the same work. This comparison provides the CV. (See Guidelines Discussion Paragraph 1.4.6)

Note: The EVMS will use actual cost data from the company accounting system as appropriate for accurate reporting of program performance.

Documents: Internal performance reports, variance analysis documents, accounting system data

Guideline 30. Control retroactive changes to records pertaining to work performed that would change previously reported amounts for actual costs, earned value, or budgets. Adjustments should be made only for correction of errors, routine accounting adjustments, effects of customer or management directed changes, or to improve the baseline integrity and accuracy of performance measurement data. (See Guidelines Discussion Paragraph 1.4.7)

1. The contractor's accounting system must provide for control over retroactive adjustments to actual costs to ensure management value of performance measurement information is not compromised.

Documents: Journal vouchers, accounting manual

#### INDIRECT MANAGEMENT PROCESS GROUP

Guideline 4 Identify the company organization or function responsible for controlling overhead (indirect costs). (See Guidelines Discussion Paragraph 1.5.1)

1. Managerial positions responsible for establishing and controlling indirect budgets are clearly identified in the contractor's organizational structure.
2. The responsibilities and authorities are clearly described.

Documents: Organization charts, overhead budgeting policies and procedures.

Guideline 8. Establish and maintain a time-phased budget baseline, at the CA level, against which program performance can be measured. Budget for far-term efforts may be held in higher level accounts until an appropriate time for allocation at the CA level. Initial budgets established for performance measurement will be based on either internal management goals or the external customer negotiated target cost including estimates for authorized but undefinitized work. On Government contracts, if an over target baseline is used for performance measurement reporting purposes, prior notification must be provided to the customer. (See Guidelines Discussion Paragraph 1.5.2)

1. The PMB contains budgets for indirect costs at the level appropriate for the program and/or company management.

Documents: CAP, summary planning documentation, internal time-phased baseline documents

Guideline 13. Establish overhead budgets for each significant organizational component of the company for expenses that will become indirect costs. Reflect in the program budgets, at the appropriate level, the amounts in overhead pools that are planned to be allocated to the program as indirect costs. (See Guidelines Discussion Paragraph 1.5.3)

1. Projected indirect costs, CWBS, and organizational levels, are established by a rational, traceable budgeting process.
2. The contractor's CAS Disclosure Statement defines the content and processes of the contractor's indirect management process. It normally includes a definition of indirect expenses, overhead pools are described, and each item of cost is assigned to each overhead pool.
3. A methodology exists for the application to the contract of overhead rates that will cover the period of performance for the contract.
4. Projected indirect rates are adjusted in a timely manner to reflect changes in (a) the current or projected base, (b) the level of overhead expenditures, and (c) the overhead structure. The EVMS normally will use the most current overhead rates to establish the PMB.

Documents: DCAAM 7640.1, FAR 31.203; organization charts; CAS Disclosure Statement; contractor's overhead policies and procedures.

Guideline 19. Record all indirect costs which will be allocated to the contract. (See Guidelines Discussion Paragraph 1.5.4)

1. The contractor's accounting system provides for the summarization of indirect costs from the point of allocation through the CWBS and OBS to the total contract level.
2. Overhead rates are updated frequently enough to ensure a realistic monthly allocation of indirect costs without significant adjustments to performance measurement information.

Documents: CASB Disclosure Statement; DCAA audit reports, organization charts; accounting manual

Guideline 24. Identify budgeted and applied (or actual) indirect costs at the level and frequency needed by management for effective control, along with the reasons for any significant variances. (See Guidelines Discussion Paragraph 1.5.5)

1. The evaluation of variances between indirect budgets and costs initiates management action to correct the causes of the variances.
2. Indirect variances will normally be recorded by element of expense.

Documents: Overhead budgeting policies and procedures

Guideline 27. Develop revised estimates of CAC based on performance to date, commitment values for material, and estimates of future conditions. Compare this information with the PMB to identify VAC important to company management and any applicable customer reporting requirements including statements of funding requirements. (See Guidelines Discussion Paragraph 1.5.6)

1. To ensure the most accurate rates are used for EAC purposes, the contractor's system will base these rates on: historical experience; contemplated management improvements; projected economic escalation; anticipated business volume.

Documents: Rate tables for EAC valuation, supporting rationale for projected rates

#### MANAGERIAL ANALYSIS PROCESS GROUP

Guideline 22. At least on a monthly basis, generate the following information at the CA and other levels as necessary for management control using actual cost data from, or reconcilable with, the accounting system:

1. Comparison of the amount of planned budget and the amount of budget earned for work accomplished. This comparison provides the SV.
2. Comparison of the amount of the budget earned with the actual (applied where appropriate) direct costs for the same work. This comparison provides the CV.

Guideline 23. Identify, at least monthly, the significant differences between both planned and actual schedule performance and planned and actual cost performance, and provide the reasons for the variances in the detail needed by program management. (See Guidelines Discussion Paragraph 1.6.1 & 1.6.2)

1. The contractor has and uses a process for identifying and isolating the causes of favorable and unfavorable cost and schedule variances.

Documents: Variance analysis supporting documentation, results of manager interviews

Guideline 25. Summarize the data elements and associated variances through the program organization and/or WBS to support management needs and any customer reporting specified in the contract. (See Guidelines Discussion Paragraph 1.6.3)

1. The EVMS accurately summarizes budgets, earned value, and actual costs and the associated variances up through both the CWBS and the contractor's organization.
2. Variance analysis for CWBS and organizations at levels above the CA is performed in support of internal management needs and external customer requirements.

Documents: Variance analysis procedures and supporting documentation

Guideline 26. Implement managerial actions taken as the result of earned value (See Guidelines Discussion Paragraph 1.6.3.)

1. Managers at the CA, intermediate and program levels are involved in the evaluation of performance measurement data.
2. Corrective actions are initiated at the appropriate level and tracked to resolution.
3. Management data, to be of value, must be generated in a timely manner and be accurate.

Documents: Internal data reports; action item lists; program status review documents; CPR

Guideline 27. Develop revised estimates of CAC based on performance to date, commitment values for material, and estimates of future conditions. Compare this information with the PMB to identify variances at completion important to company management and any applicable customer reporting requirements including statements of funding requirements. (See Guidelines Discussion Paragraph 1.6.5)

1. Managers periodically reassess the remaining requirements on a program and maintain a most likely estimate of the cost to complete the program objectives, based on an assessment of: actual costs to date; commitment values for material items (if applicable); performance to date; knowledgeable projections of future performance; estimates of economic escalation.
2. The process of reassessment should focus on the CAs, but must ensure that all resource requirements are considered.
3. Managers evaluate the estimate to complete on a monthly basis, updating when required.
4. Program risk and potential cost avoidance areas are periodically assessed and their impact on contract cost estimates is communicated to the customer in program status reviews and/or external reports.
5. The current estimates of CAC are compared with corresponding budgets and the causes of variances are identified.
6. The results of the EAC process are communicated to the customer in reports and in funding documents to help assure that sufficient funding for the program is maintained.

Documents: CPR; internal performance measurement reports; EAC supporting documentation

#### CHANGE INCORPORATION PROCESS GROUP

Guideline 28. Incorporate authorized changes in a timely manner, recording the effects of such changes in budgets and schedules. In the directed effort prior to negotiation of a change, base such revisions on the amount estimated and budgeted to the program organizations. (See Guidelines Discussion Paragraph 1.7.1)

1. Authorized changes should be incorporated in the PMB as soon as practical.
2. The incorporation of changes includes revisions to schedules, budgets, work authorizing documents, and any other appropriate changes (including appropriate retroactive changes) necessary to properly reflect authorized revisions.
3. Budgets for changes authorized, but not yet priced, are normally based on the contractor's resource plan for accomplishing the work. Near term budgets should be issued for performance measurement purposes.

Documents: Contract change documentation

Guideline 29. Reconcile current budgets to prior budgets in terms of changes to the authorized work and internal replanning in the detail needed by management for effective control (See Guidelines Discussion Paragraph 1.7.2)

1. Internal adjustments to plans for future actions are a normal management process as things happen and situations change. It is important to ensure that overall program scope, cost, and schedule objectives are supported and retroactive changes are properly controlled to maintain the integrity of program performance data.
2. The contractor should be able to trace current budget values back to original budget values for reconciliation to contract line item values, as necessary.

Documents: Budget revision records; change control records; manager interview results

Guideline 30. Control retroactive changes to records pertaining to work performed that would change previously reported amounts for actual costs, earned value, or budgets. Adjustments should be made only for correction of errors, routine accounting adjustments, effects of customer or management directed changes, or to improve the baseline integrity and accuracy of performance measurement data. (See Guidelines Discussion Paragraph 1.7.3 & 1.7.4)

1. A company must be able to make routine accounting adjustments and correct data
2. errors, as well as control changes to prior and current period data to prevent inappropriate changes from being made in the performance measurement information.
3. Corrections should be made if wrong data is significantly affecting the management value of the system but the validity and value of management reports will be compromised if current plans or program history (performance to date information) are constantly changing.

Documents: Authorization documents for retroactive budget adjustments; manager interview results

Guideline 31. Prevent revisions to the program budget except for authorized changes. (See Guidelines Paragraph 1.7.6)

1. Changes to the CBB (see definition) are limited to those authorized by contractual action.

Documents: Change control procedures; budget logs

Guideline 32. Document changes to the PMB. (See Guidelines Discussion Paragraph 1.7.6 & 1.7.7)

1. The PMB should reflect the current program management plan for accomplishment of program objectives. If the maintenance of baseline plans is compromised, the information on management reports will be degraded.
2. A company must be able to make routine accounting adjustments and correct data errors, as well as control changes to prior and current period data to prevent inappropriate changes from being made in the PMB.

Documents: CPR; budget logs; change authorization documents

#### MATERIAL MANAGEMENT PROCESS GROUP

Guideline 9. Establish budgets for authorized work with identification of significant cost elements (labor, material, etc.) as needed for internal management and for control of subcontractors. (See Guidelines Discussion Paragraph 1.8.1)

1. Budgets assigned to CAs for material requirements are properly planned and supported by material requirement documents.
2. Material budgets are time-phased in support of internal schedule requirements.

Documents: Material CAPs; BOM; program schedules

Guideline 10. To the extent it is practical to identify the authorized work in discrete WPs, establish budgets for this work in terms of dollars, hours, or other measurable units. Where the entire CA is not subdivided into WPs, identify the far term effort in larger PPs for budget and scheduling purposes. (See Guidelines Discussion Paragraph 1.8.2)

1. A material WP is a natural subdivision of the CA and reflects the actual way in which the work will be performed, contains adequate objective indicators/milestones to minimize subjectivity, and is a meaningful product or management-oriented subdivision of a higher-level element of work (CA).
2. A material planning package is a holding account (within a CA) for budget for work that is not yet practical to be planned at the WP level. The planning horizon for this effort will be based on program management needs.
3. The contractor should be able to substantiate material WP and PP budgets in terms or requirements to support program objectives and plans.

Documents: CAPs; manager interview results; work authorization documents; schedules

Guideline 12. Identify and control level of effort activity by time-phased budgets established for this purpose. Only that effort which is unmeasurable or for which measurement is impractical may be classified as level of effort. (See Guidelines Discussion Paragraph 1.3.9)

1. Material items are appropriately planned in discrete, apportioned or LOE CAs.
2. High-dollar value or critical material items should be discretely tracked to ensure their availability to support program needs.

Documents: CAPs; material manager interview results

Guideline 21. For EVMS, the material accounting system will provide for:

- (1) Accurate cost accumulation and assignment of costs to CAs in a manner consistent with the budgets using recognized, acceptable, costing techniques.
- (2) Cost performance measurement at the point in time most suitable for the category of material involved, but no earlier than the time of progress payments or actual receipt of material.
- (3) Full accountability of all material purchased for the program including the residual inventory. (See Guidelines Discussion Paragraph 1.8.3)

1. The contractor's material control procedures should call for and result in: a) material costs (normally on an applied basis) being reported within the same accounting period as the associated earned value, b) cost performance for material occurring at the point of time most suitable for the type of material involved, but no earlier than point of receipt; and c) all materials purchased for the contract being fully accounted for (including residual inventory).
2. The contractor should be able to determine unit, equivalent unit, and lot costs by type and amount of material as necessary.

Documents: Material trace; internal performance reports

Guideline 22 At least on a monthly basis, generate the following information at the CA and other levels as necessary for management control using actual cost data from, or reconcilable with, the accounting system:

1. Comparison of the amount of planned budget and the amount of budget earned for work accomplished. This comparison provides the SV.
3. Comparison of the amount of the budget earned with the actual (applied where appropriate) direct costs for the same work. This comparison provides the CV.

Guideline 23. Identify, at least monthly, the significant differences between both planned and actual schedule performance and planned and actual cost performance, and provide the reasons for the variances in the detail needed by program management. (See Guidelines Discussion Paragraph 1.8.4)

1. The contractor has a process for identifying and isolating the causes of favorable and unfavorable cost and SVs for material CAs.
2. The level and extent of analysis of these variances will be dependent on individual contractor processes.
3. When significant amounts of material are involved, the contractor should be able to identify the price variance component of the material CV separately from the portion attributable to excess usage.

Documents: Material trace; material variance analysis documentation; internal material performance data

Guideline 27. Develop revised estimates of CAC based on performance to date, commitment values for material, and estimates of future conditions. Compare this information with the PMB to identify VAC important to company management and any applicable customer reporting requirements including statements of funding requirements. (See Guidelines Discussion Paragraph 1.8.5)

1. Managers periodically reassess the remaining material requirements on a program and maintain a most likely estimate of the CTC program objectives, based on an assessment of: actual costs to date; commitment values for material items; performance to date; knowledgeable projections of future performance; and estimates of economic escalation.
2. Additional requirements for material items are properly coordinated with management and the material procurement organization.
3. Material budgets at completion are compared to estimates for material, causes of the variances are explained, and management action is taken.
4. Material EACs should be evaluated periodically and updated based on management needs and program procedures. This calculation includes the impact of unrecoverable price variances and additional material requirements due to excess usage.

Documents: CPR; internal performance reports; EAC supporting documentation

#### SUBCONTRACT MANAGEMENT PROCESS GROUP

Guideline 2. Identify the program organizational structure including the major subcontractors responsible for accomplishing the authorized work and define the organizational elements in which work will be planned and controlled. (See Guidelines Discussion Paragraph 1.9.1)

1. The program identifies the appropriate organization(s) with responsibility for managing the performance of the major subcontractor(s).
2. Major subcontractors are identified with a scope of work and its related WBS elements.

Documents: CWBS and CWBS dictionary (if applicable); contractor organization charts

Guideline 9. Establish budgets for authorized work with identification of significant cost elements (labor, material, etc.) as needed for internal management and for control of subcontractors. (See Guidelines Discussion Paragraph 1.9.2 & 1.9.3)

1. Budgets assigned to CAs for subcontracted items are planned and supported by time-phased information from the subcontractor.
2. Time-phased CA budgets for the subcontractors support internal and contractual schedule requirements.

Documents: Subcontract CAPs; BCWS supporting documentation; program schedules

Guideline 10. To the extent it is practical to identify the authorized work in discrete WPs, establish budgets for this work in terms of dollars, hours, or other measurable units. Where the entire CA is not subdivided into WPs, identify the far term effort in larger PPs for budget and scheduling purposes. (See Guidelines Discussion Paragraph 1.9.4)

1. WP and PP budgets based on subcontractors represent the subcontractor's plan for supporting contract effort and are based on subcontractor and/or in-house documentation.

Documents: CAPs; manager interview results; work authorization documents; schedules

Guideline 12. Identify and control LOE activity by time-phased budgets established for this purpose. Only that effort which is unmeasurable or for which measurement is impractical may be classified as LOE. (See Guidelines Discussion Paragraph 1.3.9)

1. Subcontract CAs planned as LOE, will be supported by other management processes to allow program visibility into the work being performed by the subcontractor.
2. Subcontract LOE budgets are appropriately separated from the prime's LOE budgets to avoid distortion of performance measurement information.

Documents: Subcontract CAPs; subcontract scope of work descriptions; subcontract manager interviews

Guideline 16. Record direct costs in a manner consistent with the budgets in a formal system controlled by the general books of account. (See Guidelines Discussion Paragraphs 1.4.1 and 1.4.4)

1. The contractor's subcontract management process should include the following capabilities:

- a. subcontract costs are being reported within the same accounting period as the associated earned value.
- b. where subcontract actuals are not available, estimated actuals will be used.
- c. where progress payments are made to the subcontractor, reconciliation to reported earned value, i.e., progress is made.
- d. if the subcontractor supports multiple CWBS elements, methodologies are in place to assign actual costs to the appropriate elements, including overhead, G&A, MR, and profit/fee.

Documents: Subcontractor progress payment requests; internal and external performance reports; subcontract CAPs

Guideline 22 At least on a monthly basis, generate the following information at the CA and other levels as necessary for management control using actual cost data from, or reconcilable with, the accounting system:

1. Comparison of the amount of planned budget and the amount of budget earned for work accomplished. This comparison provides the SV.
2. Comparison of the amount of the budget earned with the actual (applied where appropriate) direct costs for the same work. This comparison provides the CV.

Guideline 23. Identify, at least monthly, the significant differences between both planned and actual schedule performance and planned and actual cost performance, and provide the reasons for the variances in the detail needed by program management. (See Guidelines Discussion Paragraph 1.8.4)

1. The manager responsible for subcontractor performance receives, reviews, and provides analysis of the subcontractor's performance measurement information.
2. Subcontractor performance measurement information is properly integrated into the prime's data, adjusted, as appropriate, and reconciled to the subcontractor's reports.
3. The subcontractor manager ensures that earned value reported by the subcontractor reconciles to actual physical progress reflected in subcontractor progress payment requests.

Documents: Subcontractor performance reports; prime to subcontractor reconciliations; progress payment requests.

Guideline 27. Develop revised estimates of CAC based on performance to date, commitment values for material, and estimates of future conditions. Compare this information with the PMB to identify VAC important to company management and any applicable customer reporting requirements including statements of funding requirements. (See Guidelines Discussion Paragraph 1.9.7)

1. Subcontract EACs are based on: a) actual costs to date, b) commitment values for subcontracted items, c) performance to date as reported in the subcontractor's report and analyzed by the subcontract manager, d) knowledgeable projections of future performance, and e) estimates of economic escalation.
2. The subcontract manager prepares an independent estimate of subcontractor costs and reports it to the customer as appropriate.
3. Subcontract BAC (internal and external) is compared to estimates and causes of variance are explained. Documents: Subcontract estimate supporting documentation; subcontractor performance reports.